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The University of Southern Mississippi

THE USE OF TIME-OUT WITH ESCAPE EXTINCTION TO REDUCE
NONCOMPLIANCE MAINTAINED BY ESCAPE OR ATTENTION

by

Shelly Renee Benshoof

Abstract of a Dissertation
Submitted to the Graduate School
of The University of Southern Mississippi
in Partial Fulfillment of the Requirements
for the Degree of Doctor of Philosophy

December 2012

ABSTRACT

THE USE OF TIME-OUT WITH ESCAPE EXTINCTION TO REDUCE NONCOMPLIANCE MAINTAINED BY ESCAPE OR ATTENTION

by Shelly Renee Benshoof

December 2012

The present study examined the effectiveness of Time-Out with Escape Extinction (TO-EE) to reduce escape-maintained noncompliance and attention-maintained noncompliance through the use of four contingency reversal designs in a clinical setting. Four parent-child dyads served as participants. Screening procedures identified four children with low levels of compliance to first time issued, parent instructions. Functional analysis procedures identified two children who exhibited escape-maintained noncompliance and two children who exhibited attention-maintained noncompliance to serve as participants. Parents were trained in the implementation of screening, functional analysis, baseline, TO-EE, and contingency reversal procedures. Results indicated that TO-EE is effective at establishing compliance levels above 80% for both escape-maintained noncompliance and for attention-maintained noncompliance. Results are discussed in context of previous research investigating the effectiveness of time-out to decrease escape-maintained noncompliance. The findings from this study are also discussed in reference to determining efficient methods for identifying treatments for problem behaviors.

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A Dissertation

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TABLE OF CONTENTS

ABSTRACT	ii
ACKNOWLEDGMENTS	iii
LIST OF TABLES	vi
LIST OF ILLUSTRATIONS	vii
CHAPTER	
I. INTRODUCTION.....	1
Intervention Selection: Function-Based Versus Topography Based	
Function-Based Interventions for Noncompliance	
Functions of TO When Applied to Noncompliance	
Application of TO with Escape Extinction for Noncompliance at The	
University of Southern Mississippi	
Purpose of the Present Study	
Research Questions	
II. METHOD.....	39
Participants	
Setting	
Data Collection	
Design	
Procedure	
Reliability and Interobserver Agreement	
Procedural Integrity	
Treatment Acceptability	
Data Analysis	
III. RESULTS.....	56
Treatment Acceptability	
IV. DISCUSSION.....	65
Research Question 1	
Research Question 2	
Limitations and Strengths	
Conclusions, Directions for Future Research, and Implications for	
Practitioners	

APPENDIXES.....	74
REFERENCES.....	95

LIST OF TABLES

Table

1. Mean Procedural Integrity Percentages across Baseline, TO-EE, Contingency
Reversal, and TO-EE 51

LIST OF ILLUSTRATIONS

Figures

1. Compliance Percentages Across Abbreviated Functional Analysis
Conditions 57
2. Compliance Percentages to Initial Parent Commands Across All Phases 59

CHAPTER I

INTRODUCTION

One of the most commonly reported childhood behavioral problems is noncompliance (Bernal, Klinnert, & Schultz, 1980; Charlop, Parrish, & Fenton, 1987; Forehand & McMahon, 1981; Henry, 1987; Kalb & Loeber, 2003; Wilder, Saulnier, Beavers, & Zonneveld, 2008). Forehand and McMahon (1981) defined noncompliance as “the refusal to initiate or finish a request from another person” (p. 2). Rhode, Jensen, and Reavis (1993) have suggested that compliance levels below 40% may hinder a child, and when combined with other problem behaviors (e.g., whining, arguing, tantrums) may also impair a child’s ability to acquire age-appropriate academic and social skills. Problems in a child’s social and academic functioning due to noncompliance may be correlated with compliance frequently serving as a keystone behavior (Ducharme & Popynick, 1993). By serving as a keystone behavior, reduction of a child’s noncompliance may also reduce other inappropriate behaviors. Increasing compliance levels may also reduce the likelihood of coercive parent-child interactions (Patterson, 1982).

Childhood noncompliance has been hypothesized to positively correlate with delinquent behaviors later in adolescence (Forehand & Wierson, 1991; Patterson, DeBaryshe, & Ramsey, 1989). Childhood noncompliance may progress into more severe behavioral concerns (e.g., truancy) during middle to late adolescence (Olmi, Sevier, & Nastasi, 1997). Given the broad spectrum of potential impairments that are related to noncompliance, it is important to train parents and others who supervise children to use empirically-supported procedures that have been established as reliable methods to

increase compliance. The increase of compliance as a result of the implementation of empirically-supported procedures is likely to improve the day-to-day functioning of the child and may prevent the progression of noncompliance to more serious offenses in the future.

The best manner in which an empirically-supported treatment is selected is a debate that has not yet reached a definitive conclusion. The selection of an empirically-supported treatment can be reached via two routes. One route in the selection of an empirically-supported treatment is to conduct an assessment of the function of the problem behavior and develop an intervention based on the hypothesized maintaining function(s) of the behavior (i.e., function-based intervention). The second route in the identification of an empirically-supported intervention is to determine which intervention to use based on successful application of those procedures in the past with behaviors of similar topographies (i.e., non-function-based intervention; Ingram, Lewis-Palmer, & Sugai, 2005).

The rationale of conducting an analysis to determine the effects of antecedent and consequent events on behavior to inform treatment selection was first articulated by Carr (1977). Carr discussed that knowing if self-injurious behavior was extrinsically or intrinsically motivated would inform the selection of an effective treatment. Iwata, Dorsey, Slifer, Bauman, and Richman (1982) conducted the first study that sought to identify the maintaining functions of self-injurious behavior (SIB). Participants in the Iwata et al. study were children who demonstrated some degree of developmental disability and were admitted for inpatient evaluation and/or treatment at a pediatric hospital. Four experimental conditions were manipulated to evaluate the possible

maintaining functions of access to attention, escape from an aversive stimulus, enriched environment, and self-stimulation on SIB. Seven of the nine participants in the study exhibited differential rates of SIB across the four environmental manipulations. Four of the children's SIB appeared to be maintained by self-stimulation, two children's SIB appeared to be maintained by escape from an aversive stimulus, and one child's SIB appeared to be maintained by access to attention. Iwata et al. hypothesized that the children who did not demonstrate differentiated levels of SIB across the conditions had multiple variables that maintained SIB or that the participants were unable to discriminate between the varying conditions. Iwata et al. concluded that it was possible to identify the maintaining variables of SIB in children with a developmental delay. Iwata et al. (1982) also hypothesized that the identification of maintaining variables of problem behavior can be used to identify successful interventions to implement based on the maintaining function(s) of the behavior by providing and/or withholding access to the maintaining function(s) contingent upon exhibited behavior.

Several studies have demonstrated that effective treatments can be identified through the completion of functional analyses (e.g., Iwata et al., 1982; Repp, Felce, & Barton, 1988), brief functional analyses (e.g., Cooper, Wacker, Sasso, Reimers, & Donn, 1990; Northup et al., 1991), and functional assessments (e.g., Dufrene, Doggett, Henington, & Watson, 2007; Ellingson, Miltenberger, Stricker, Galensky, & Garlinghouse, 2000). A functional analysis is considered brief if two or fewer observations are conducted in each condition. A functional analysis is considered extended if three or more observations are conducted in at least two conditions (Hanley, Iwata, & McCord, 2003). Indirect methods of functional assessments consist of

gathering information about the target behavior without directly observing the child (e.g., interview). Direct methods of functional assessments consist of gathering data through observing and recording data on antecedents and consequences related to the target behavior (Carter & Horner, 2007; Ellingson et al., 2000). The discussion below deals with how the identification of the function of problem behavior may contribute to treatment utility of an assessment.

Intervention Selection: Function-Based Versus Topography Based

Functional assessments and functional analyses have demonstrated treatment utility by informing the selection of effective treatments (Dufrene et al., 2007; Iwata et al., 1982). Treatment utility of an assessment is present when effective treatment recommendations are directly linked to the results of the assessment (Harding, Wacker, Cooper, Millard, & Jensen-Kovalan, 1994). Several researchers have suggested that identifying the function of a behavior leads to more efficient and effective treatments than treatments selected based on their previous successful application to similar behaviors and/or behaviors with similar topographies (e.g., Iwata et al., 1982; Iwata, Vollmer, & Zarcone, 1990). Although conducting functional analyses and functional assessments has resulted in the selection of effective treatments, closer inspection of the functional analysis and functional assessment research reveals questions in need of investigation prior to determining whether treatments based on function are more efficient and effective than treatments selected based on their previous successful application to behaviors of similar topographies.

Gresham et al. (2004) conducted a meta-analysis of articles published in the *Journal of Applied Behavior Analysis (JABA)* between the years of 1991-1999 that met

the following criteria: study examined experimental effects of a treatment on behavior using an appropriate single-case experimental design, participants were between less than one year- and 18 years-of-age, means and standard deviations or legible graphs were provided to allow for the calculation of effect sizes, study was conducted in a school setting (e.g., public, hospital school, residential school, private), and if the study was a brief report it was three or more pages in length. Gresham et al. noted that “the overwhelming majority of studies published in *JABA* using functional behavioral assessment procedures have been conducted with developmentally disabled populations” (p. 21) and stated that the meta-analysis would be of interest to individuals specializing in developmental disabilities. Effect sizes were calculated for studies divided into four assessment categories: (a) no functional assessment, (b) experimental functional analysis, (c) descriptive functional assessment, and (d) a combination of experimental and descriptive functional behavioral assessment. The means and standard deviations of the effect sizes for no functional behavioral assessment, experimental functional analysis, descriptive functional assessment, and a combined experimental and descriptive functional assessment were 6.77(18.69), 4.60(7.62), 0.70(5.07), and 2.18(1.37), respectively. No functional behavioral assessment was found to have a greater effect size than all other categories followed by an experimental functional analysis. Gresham et al. noted that results should be interpreted with caution due to the largest degree of variability in data being found in studies not including a functional assessment of behavior along with the possibility that the degree of effectiveness may not represent typical effect sizes due to possibly more studies being accepted for publication that demonstrate larger effect sizes in comparison to studies with smaller effects.

Hanley et al. (2003) published a review of the application of functional analysis to problem behaviors. Hanley et al. reported that 91% of the research supporting the use of functional analysis has been conducted on children with developmental disabilities. The range of problem behaviors that has been examined with a functional analysis is also limited. Functional analysis studies have been conducted mainly with the occurrence of SIB (64.6%) and aggression (40.8%), and to a lesser extent disruptive behavior (19.1%). Also, only 17.4% of functional analysis studies have been conducted in a location other than inpatient facilities, schools, or institutions. Even within the relatively controlled locations in which the majority of functional analysis studies have been conducted, it is uncommon for functional analyses to be conducted in the environment in which the child exhibits the problem behaviors. Due to the common separation of the assessment environment from the typical environment of the child, concerns of ecological validity of functional analysis have been raised. Throughout the functional analysis literature the extent of treatment utility realized through a functional analysis remains inconclusive for common problem behaviors exhibited by typically developing children (Hanley et al., 2003).

Few studies have directly compared the implementation of treatments based on previous successful implementation with similar behaviors and/or behaviors with similar topographies to treatments derived from the results of a functional assessment. Schill, Kratochwill, and Elliott (1998) investigated the treatment utility of functional assessment within the framework of behavioral consultation. Thirteen school psychology graduate students served as consultants, 10 Head Start teachers served as consultees, and 19 Head Start preschool students served as participants in this study. Each teacher referred at least

one student in their classroom regarding problem behavior at school. Behavioral targets for the study included: “noncompliance, aggression, impulsive classroom behavior, social withdrawal, refusal to participate in activities, tantrums, crying, inappropriate verbal behavior, and interrupting” (p. 119).

Participants were randomly assigned to the Functional Assessment Approach or to the Technological Approach (Schill et al., 1998). Teachers in both groups completed the Problem Identification Interview (PII) and the Treatment Evaluation Interview (TEI). For the Technological Approach group, questions referring to environmental conditions were not included in the PII. Following the PII, teachers and consultants in the Technological Approach group gathered data on the frequency, duration, and severity of the problem behavior. The consultants and consultees then concluded whether the problem behavior was an internalizing or externalizing problem. Each teacher in the Technological Approach group was given a self-help manual containing literature regarding the pertinent behavioral concern (i.e., internalizing, externalizing) of the target child. Teachers were instructed to read the manual and select a treatment from the manual to implement. Teachers in the Technological Approach group selected the following interventions from the self-help manual: differential reinforcement, instruction giving, goal setting, positive reinforcement, and/or peer activities.

The Functional Assessment Approach group answered questions regarding antecedent conditions, consequent conditions, and the progression of antecedent conditions to the target behavior and the target behavior to the consequent conditions that surrounded the problem behavior during the PII and a Problem Analysis Interview (PAI). The Functional Assessment Approach teachers also completed the Motivational

Assessment Scale. Consultants gathered data for the frequency of the target behaviors, the time and settings in which the target behaviors occurred and did not occur, and the consequences that followed the target behaviors through direct observation of the children (Schill et al., 1998). Consultants formed hypotheses of the maintaining functions of the target behaviors based on the observational data. An individualized intervention was developed in consideration of the hypothesized maintaining function of the problem behavior by the consultant and the consultee during the PAI. Interventions selected included: differential reinforcement, positive reinforcement, role-play, social skills instruction, time-out (TO), modeling, change in instruction commands, self-monitoring, and goal setting. Teachers implemented the developed intervention in the classroom. The consultant continued collecting direct observation data on the target behavior upon implementation of the intervention.

Each child's observation data were evaluated in a single-case design through which the consultant and the consultees gathered data on the target behavior (Schill et al., 1998). All cases were also evaluated in a between-group comparison between the Technological Approach and the Functional Assessment Approach. In the Technological Approach group effect sizes averaged 0.52 (*SD* 0.74). In the Functional Assessment Approach group the average effect size was 0.84 (*SD* 0.47). The between-group comparison did not yield statistically significant differences between the two approaches. In both approaches, the teachers rated the interventions as highly acceptable and reported that they were generally satisfied with the consultation services. Costs of designing and implementing the interventions were determined by combining the cost of consultant

time and of materials used for consultation services. Total costs averaged \$184.93 in the Functional Assessment Approach and \$158.22 in the Technological Approach.

Results from Schill et al. (1998) suggested that there is no significant difference in treatment effectiveness whether the treatment selection is based on a hypothesized maintaining function of the behavior or is based on treatments that are considered standard interventions for the behavioral concern. Additionally, cost differences between the two approaches were found to be nonsignificant at the .05 level. The results from Schill et al. challenge the theoretical assumption that functional assessment leads to more effective treatment than a treatment selected because it was previously successful with similar behaviors or behaviors with similar topographies.

Newcomer and Lewis (2004) compared function-based interventions to interventions selected based on the topography of the problem behavior. Three students (Matthew, Jerrod, and Emma) were referred by their teachers and/or school counselors for participation in the study. Matthew was a nine-year-old boy who received special education services under the category of Other Health Impaired and whose primary referral concern was verbal aggression toward peers. Jerrod was an 11-year-old male. His school recommended that his parents seek out a psychological examination and counseling for his withdrawn and bizarre behaviors (e.g., speaking to apparitions, crawling under his desk), which the parents did not pursue. Jerrod's primary referral concern was off-task behavior. Emma was an 11-year-old female who did not receive special education services whose primary referral concern was off-task behavior.

Newcomer and Lewis (2004) conducted a descriptive functional assessment for each student consisting of: (a) the functional assessment interview (O'Neil et al., 1997)

with the teacher; (b) teacher completion of the Problem Behavior Questionnaire rating scale (Lewis, Scott, & Sugai, 1994); (c) teacher-developed scatter plot (Touchette, MacDonald, & Langer, 1985) of problem behavior and the antecedent and consequent variables related to the problem behavior; (d) a Student-Assisted Functional Assessment Interview (Kern, Dunlap, Clarke, & Childs, 1994); and (e) direct descriptive antecedent, behavior, consequence (ABC) observations (Bijou, Peterson, & Ault, 1968; Lalli, Browder, Mace, & Brown, 1993). The functional assessment data indicated that Matthew's verbal aggression was maintained by access to escape, Jerrod's off-task behavior was escape-maintained, and that Emma's off-task behavior was maintained by attention. The hypotheses developed through the descriptive functional assessment were tested in a functional analysis. The conditions in the functional analysis were selected based on their indicated antecedent or consequent influence on the problem behavior in the functional assessment. The functional analysis confirmed the functional properties of problem behavior for Matthew and Jerrod and provided limited support of the hypothesis that Emma's off-task behavior was maintained by attention.

Following the completion of the functional analysis for each child, researchers met with each teacher to develop a function-based intervention and have the teacher develop an intervention based on the topography of the behavior that would be consistent with the existing systems and conditions within the classroom (i.e., non-function-based intervention). For all participants, data collected in the functional assessment served as baseline. Each teacher implemented the non-function-based intervention following the completion of the functional analysis. The function-based intervention that was

developed by the researcher and the teacher was then implemented following the non-function-based intervention.

All participant data were represented across baseline, non-function-based intervention, and the function-based intervention. Matthew exhibited verbal aggression in an average of 18, 36, and 6% of intervals, respectively. Jerrod exhibited off-task behavior in an average of 38, 53, and 5% of intervals, respectively. Emma exhibited off-task behavior in an average of 9, 7, and 2% of intervals, respectively. Emma did not experience a substantial difference in levels of problem behavior across the non-function-based and function-based intervention phases. For two of the three children function-based interventions appeared to be more effective than non-function-based interventions (Newcomer & Lewis, 2004).

When interpreting the results from Newcomer and Lewis (2004), it is important to consider that the function-based behavior intervention was always preceded by the non-function-based intervention. Therefore, it is not possible to fully evaluate treatment effects due solely to the function-based versus topographical-based interventions. The absence of direct measures of treatment integrity across the experimental conditions was also a limitation in the study. Additionally, the non-function-based interventions developed by teachers consisted of fewer components (range 1-3 components) and may not have been evidenced-based in comparison to the evidence- and function-based interventions developed by teachers and researchers (range 4-5 components).

Ingram et al. (2005) examined the effectiveness of interventions aligned with information gathered through a functional behavioral assessment to intervention selections that were not based on a functional behavioral assessment. The study was

conducted in a suburban middle school. Two boys in the sixth-grade (Carter and Bryce) who attended separate classrooms served as participants.

The Teacher-Directed Functional Assessment Interview and the Student-Directed Functional Assessment Interview were conducted for both participants. The semi-structured interviews gathered data on where and when problem behaviors were likely to occur, antecedents that elicited problem behaviors, events in the environment that were associated with exhibition of the problem behavior, response classes, and recommendations for intervention (Ingram et al., 2005). Carter's teacher identified "not engaged" as his problem behavior, and Bryce's problem behavior was "off task."

A function-based behavioral intervention plan (BIP) was developed through the review of the indirect and direct data collected in the functional behavioral assessment (Ingram et al., 2005). The function-based BIP included interventions targeting setting events, antecedents, behavior teaching, and consequences. Self-management was also implemented in the function-based BIP. It is important to note that the non-function-based BIP was not selected solely on the basis of an empirically-supported treatment. In order to be selected, the empirically-supported intervention had to address the problem behavior being maintained by a function other than the one hypothesized in the functional behavioral assessment. The selected treatment in the non-function-based BIP could not address any aspect of supported setting events, antecedents, or function of the problem behavior identified through the functional behavioral assessment. Self-management techniques were also incorporated into the non-function-based BIP.

Following baseline (A), Ingram et al. (2005) assessed the effectiveness of a function-based BIP (B) and a non-function-based BIP (C). Carter and Bryce progressed

through the experimental phases in the following orders: ABCBC and ACBCB, respectively. Carter's average level of not engaged behavior was 49, 9, 49, 6, and 31% of intervals across baseline, function-based BIP, non-function-based BIP, function-based BIP, and the non-function-based BIP, respectively. Bryce's average level of off-task behavior was 61, 38, 10, 56, and 8% of intervals across baseline, non-function-based BIP, function-based BIP, non-function-based BIP, and function-based BIP, respectively. Overall the results from the study indicate that implementation of the function-based BIPs was more effective in reducing Carter and Bryce's target behaviors than the non-function-based BIPs.

When interpreting the results from Ingram et al. (2005) it is important to consider that the non-function-based BIPs were selected with knowledge of the functional assessment results. The non-function-based BIPs could only be selected from interventions that did not address any aspect of supported setting events, antecedents, or function of the problem behavior identified through the functional behavioral assessment. The selection process for the non-function-based BIP in the Ingram et al. study did not align with the manner in which an empirically-supported treatment based on the topography of the behavior would be selected or conducted in an applied setting. The selection process of the non-function-based BIP is a significant limitation in the study.

In reviewing the results of Schill et al. (1998), Newcomer and Lewis (2004), and Ingram et al. (2005), it appears that research comparing function-based interventions to empirically-supported interventions based on the topography of target behaviors has yet to provide clear conclusions as to which process yields the best method for treatment selection. Research comparing function-based interventions to empirically-supported

interventions based on the topography of target behaviors can strengthen future conclusions by addressing limitations in previous studies concerning the selection of the non-function-based comparison treatments (i.e., selecting evidenced-based interventions prior to the knowledge of functional assessment results). Research is also needed on the treatment utility of function-based interventions for specific behaviors to determine if the treatment utility of functional assessments and functional analyses varies across the topographies of problem behaviors. The high prevalence of noncompliance makes it a logical choice for investigating the treatment utility of determining the function of noncompliance prior to treatment selection.

Function-Based Interventions for Noncompliance

In order to evaluate the treatment utility of functional assessments and functional analyses for noncompliance, the maintaining function of noncompliance must first be identified. Reimers et al. (1993) investigated the functional properties of noncompliance in six children who ranged in age from four to five years in a pediatric behavior management outpatient clinic. Five of the children had no previous diagnoses and one child had a diagnosis of moderate mental retardation. Target behaviors for each child were: (a) compliance-initiating a requested task within 10 s of the delivery of the command, (b) noncompliance- the failure to initiate a requested task within 10 s of the delivery of the command, and (c) inappropriate behavior- definition varied for each participant, but included behaviors such as elopement, kicking, screaming.

A brief functional analysis was implemented including a free play condition, an attention condition, and an escape condition. The free play condition was always introduced first and the order of attention and escape conditions was counterbalanced

across participants. The parent of each child was trained in each condition and implemented the procedure with their child. In the free play condition parents instructed their child to play with the toys available in the room and to periodically praise their child for playing appropriately with the toys. During the attention condition parents delivered a command approximately every 30 s. If the child was noncompliant to the command the parent discussed the request with the child. During the escape condition parents implemented a series of prompts including a spoken request which was followed by physical guidance through the command. Parents delivered contingent praise upon the exhibition of compliance in the escape phase. When the child was noncompliant to the command, parents ceased the implementation of the prompting sequence and removed all task demands for 10 to 30 s until a new command was delivered.

Results from the functional assessment suggested that noncompliance for four of the six children was maintained by both attention and escape (Reimers et al., 1993) as reflected by similar levels of noncompliance across the two conditions. Of the other two children, one child appeared to exhibit attention-maintained noncompliance, and one child was hypothesized to exhibit escape-maintained noncompliance.

Results from Reimers et al. (1993) suggest that it is possible to determine the maintaining function(s) of noncompliance in children. The results also suggest that escape and attention can maintain noncompliance. Reimers et al. (1993) also suggested that the identification of the maintaining variables would result in treatment utility; however, no treatment implementation data were collected following the completion of the functional assessment. Reimers et al. significantly contributed to the literature by determining possible maintaining variables of noncompliance, but further research needs

to be conducted to evaluate if the identification of maintaining variables of noncompliance leads to effective treatments in an efficient manner.

While reviewing studies examining the effectiveness of treatments when applied to noncompliance it is important to note that the majority of studies examine the effects of treatments targeting compliance with “do” commands (Neef, Shafer, Egel, Cataldo, & Parrish, 1983). Neef et al. examined the effects of applying treatment (i.e., physical guidance) exclusively to do commands or don’t commands on both do and don’t commands with six children ranging in age from six- to seven-years-old. Data indicated that improvements in compliance on one type of command (i.e., do) did not result in an increase or maintenance of improvements of the other type of command (i.e., don’t). In Neef et al.’s final phase both do and don’t commands were targeted with treatment and all commands responded to treatment and high levels of compliance were established and/or maintained for all participants. Results from Neef et al indicate that consideration should be applied to the type of requests being addressed within a study when interpreting the study’s results. Consumers of research may have difficulty doing this given that many studies do not indicate the type of commands issued within experimental conditions.

Several studies have investigated the functional properties of noncompliance as one of several target behaviors. Within the functional assessment literature it is common for target behaviors (e.g., noncompliance, inappropriate talking) to be grouped for analysis under inappropriate behaviors or disruptive behaviors (e.g., Broussard & Northup, 1995; Harding et al., 1994). Research investigating the functional properties of the primary concern of noncompliance, and the treatment utility of those functional

assessments is limited. Dufrene et al. (2007); Kern, Delaney, Hilt, Bailin, and Elliot (2002); Swartzwelder (2008); and Wilder, Harris, Reagan, and Rasey (2007) targeted noncompliance as the primary referral concern for one or all of the participants in their studies. Dufrene et al. (2007) and Wilder et al. (2007) implemented interventions that effectively reduced noncompliance that were selected based on the identified functions of noncompliance, whereas Kern et al. and Swartzwelder compared the efficacy of interventions following the identification of the function of noncompliance.

Kern et al. (2002) conducted two experiments in which they targeted noncompliance as the referral concern. Kern et al. examined the potential for physical guidance to serve as a reinforcer for attention-maintained noncompliance. In both experiments sessions were conducted in one of three rooms that resembled a den or bedroom. Experiment 1 included Stephanie, a 17-year-old female with severe mental retardation, Ronald, an eight-year-old male with severe mental retardation, and Matthew, an 11-year-old male with severe mental retardation. A reversal design consisting of Physical Guidance and No Physical Guidance was counterbalanced across participants. In both conditions participants were issued a command and noncompliance was defined as failure to initiate compliance within five s following the issuing of the command and if the participant ceased completion of the command for five s before the task was completed. Verbal praise and brief physical contact were provided to participants contingent upon completion of a task in both conditions. In the No Physical Guidance condition the therapist repeated the original command contingent upon noncompliance. In the Physical Guidance condition the therapist provided hand over hand guidance for

the completion of one step of the command or for five s if a task did not have discrete steps.

Across all three participants substantial differences in compliance levels were observed across conditions. Noncompliance increased in the Physical Guidance condition and decreased in the No Physical Guidance Condition for each participant (Kern et al., 2002). Based on the results of Experiment 1, Kern et al (2002) hypothesized that for some individuals physical guidance may function as positive reinforcement. To examine this hypothesis Kern et al. (2002) completed Experiment 2.

In Experiment 2, Christina, a 24-year-old female with severe mental retardation, and Joel, a 12-year-old male with moderate mental retardation, served as participants. In Phase 1 Kern et al. (2002) completed a preference assessment. Out of the four options presented that included a therapist, Christina spent .5% of her time engaging with the therapist and Joel spent 73% of his time engaging with the therapist. In Phase 2 a functional analysis was conducted including escape and attention conditions. Based on higher levels of noncompliance in the attention and escape phases, respectively, the results of the functional analysis indicated that Joel's noncompliance was attention-maintained and Christina's noncompliance was escape-maintained.

Phase 3 of Experiment 2 closely resembled the Physical Guidance and No Physical Guidance phases presented in Experiment 1. The only change made to procedures in Experiment 2 were to extend the definition of noncompliance and duration of physical contact contingent upon noncompliance in the Physical Guidance phase from five-s to 10-s. Christina's noncompliance in the No Physical Guidance condition was near 100% during all sessions. Christina's noncompliance consistently decreased when

the Physical Guidance condition was presented. Across Physical Guidance, No Physical Guidance, Physical Guidance, and No Physical Guidance, Joel's noncompliance averaged 50, 19, 45, and 8%, respectively.

Based on the results of Experiment 2, Kern et al. (2002) concluded that physical guidance served as a reinforcer for Joel whose noncompliance was identified to be attention-maintained. It was concluded that physical guidance did not serve as a reinforcer for Christina whose noncompliance was identified to be escape-maintained. A limitation in Experiment 2 is that verbal and physical attention was not isolated so it is not possible to determine which aspect of the physical guidance served as a reinforcer. Overall the results of Kern et al. indicated that interventions targeting noncompliance may be differentially effective based on the function of noncompliance.

Dufrene et al. (2007) investigated the effectiveness of functional assessment procedures to identify the functional properties of high incidence disruptive classroom behaviors in pre-school children without developmental disabilities. Dufrene et al. (2007) also examined the effectiveness of interventions selected based on the identified functions of the disruptive behavior to reduce target behaviors. One child's (Bobby) target behavior was noncompliance. Dufrene et al. (2007) used the Functional Assessment Informant Record for Teachers Pre-School Version (FAIR-T P) to hypothesize the function of Bobby's noncompliance. Following the completion of the FAIR-T P, direct-descriptive observations were conducted. Data derived from the direct-descriptive observations were used to determine the occurrence of noncompliance and the conditional probabilities of consequent events (i.e., attention, escape, access to tangible or activity). An abbreviated functional analysis was conducted following the completion of

the direct-descriptive observations comprised of three sessions consisting of attention, escape, and access to preferred tangible or activity. Bobby experienced each condition once. Results from the functional assessment indicated that Bobby's noncompliance was escape-maintained.

An intervention was designed based on Bobby's functional assessment data indicating that Bobby's noncompliance was escape-maintained. The developed intervention for Bobby was for the teacher to leave Bobby alone contingent on compliance (i.e., no commands for one min following compliance) and to engage in hand-over-hand guidance with Bobby until the task was completed upon exhibition of noncompliance (Dufrene et al., 2007). An intervention analysis was conducted in an ABAB design to compare the function-based intervention described above (B) to a contingency reversal (A) in which Bobby accessed removal of commands for one min contingent upon the exhibition of noncompliance. Bobby's noncompliance level across the ABAB phases averaged 43, 7, 41, and 2%, respectively. The results from Dufrene et al. (2007) provide initial support for functional assessment procedures possessing treatment utility in preschool children without developmental disabilities who exhibit high frequency disruptive classroom behaviors (e.g., noncompliance).

Wilder et al. (2007) completed a functional analysis of noncompliance to teacher requests in two three-year-old boys (Fred and Sam) and developed an intervention based on the results of the functional analysis for each child to increase compliance levels. Instructions to clean up and to turn off the video were selected to serve as the commands for analysis and treatment evaluation based on their reported common use in the classroom setting by the teacher. The brief functional analysis consisted of a preferred

activity condition, a nonpreferred activity condition, and a control condition. Wilder et al. designed the preferred activity condition “to test for maintenance of positive reinforcement because noncompliance resulted in continued access to the high-preference activity” (p.174). In the preferred activity condition the participant was instructed to turn off the video after watching the video for 2 min. If the child complied with the request, the teacher said thank you and the child was allowed to engage in low-preference activities for three min. Wilder et al. (2007) designed the nonpreferred condition “to test for maintenance by negative reinforcement because noncompliance resulted in avoidance of the nonpreferred activity” (p. 174). In the nonpreferred activity condition the child played with low-preference items for two min before the teacher gave the child a command to pick up the paper from the floor. If the child complied with the request, the teacher said thank you, and the child continued to interact with the low-preference items for three min. If the child did not comply the therapist did not interact with the child for three min. In the control condition low-preference items were available for two min. After two min the teacher instructed the child to turn the video on. If the child complied the teacher said “Thank you” and the child watched the video for three min. If the child did not comply the therapist did not interact with the child for three min.

Fred was noncompliant with 88, 12, and 0% of instructions across the preferred activity condition, the control condition, and the nonpreferred activity condition, respectively. Sam was noncompliant with 63, 0, and 0% of instructions across the preferred activity condition, the control condition, and the nonpreferred activity condition, respectively. Based on the functional assessment results Wilder et al. (2007)

hypothesized that noncompliance for Fred and Sam was maintained by access to positive reinforcement (i.e., the video).

A differential reinforcement of alternative behavior (DRA) intervention was selected for both students to target noncompliance (Wilder et al., 2007). To evaluate the effectiveness of DRA to decrease noncompliance, sessions containing 10 trials of a single instruction to turn off the video were completed. Baseline sessions were identical to the preferred activity condition. In the DRA phase the child was allowed continued access to the video for three min if he did not comply with the instruction to turn off the video. If the child complied with the command to turn off the video he earned a coupon. After receiving the coupon the child remained in the room for three min. Each child could exchange a coupon for three min of uninterrupted video access. The coupons could also be saved and exchanged for extended periods of video viewing. Coupons could be exchanged following each 10-trial session.

Fred complied with an average of 7, 100, 28, and 97% of commands across baseline, DRA, withdrawal, and DRA phases, respectively. Sam complied with an average of 0, 80, 17, and 88% of commands across baseline, DRA, withdrawal, and DRA phases, respectively. Wilder et al. (2007) concluded that a functional analysis can identify the functional properties of noncompliance in preschool children and that the functional analysis results lead to effective function-based interventions.

Swartzwelder (2008) examined the effectiveness of physical guidance and TO to reduce noncompliance in four children (i.e., Wendy, Joshua, Matthew, Nick) whose function of noncompliance was identified prior to introducing treatment. All children attended a university-based early intervention program for children with language and

developmental delays where all sessions were conducted. Wendy was a five-year-old female and Joshua was a five-year-old male. Wendy and Joshua were both diagnosed with an unspecified developmental delay. Matthew was a five-year-old male who was diagnosed with developmental delays in the areas of speech, cognition, language, and personal-social. Nick was a six-year-old male who was diagnosed with Hurler's Syndrome whose cognitive functioning was measured in the average range. Compliance levels in baseline averaged 58.33, 73.33, 60, and 63.33% for Wendy, Matthew, Joshua, and Nick, respectively.

Following baseline Swartzwelder (2008) conducted a functional analysis following the procedures similar to those implemented in Kern et al. (2002). Both functional analysis conditions consisted of the experimenter delivering 10 commands preselected by the children's teacher. In the Escape condition if the child did not initiate compliance to an instruction within 5 s a 30 s break was provided with no attention. If the child did comply the experimenter provided brief verbal praise followed by a new demand. In the Attention condition the therapist continually re-issued the command and physically guided the participant to complete the task if the child did not initiate compliance within five s. If the participant complied with the command a 30-s break was provided with no attention. Swartzwelder determined the function of noncompliance by the presence of 20% or more separation in compliance levels across escape and attention conditions. Wendy and Matthew exhibited higher levels of noncompliance in the attention condition relative to the escape condition. Swartzwelder concluded that Wendy and Matthew's noncompliance was maintained by attention. Joshua and Nick exhibited higher levels of noncompliance in the escape condition relative to the attention condition.

Swartzwelder concluded that Joshua and Nick's noncompliance was maintained by escape.

Treatment was introduced in an alternating treatments design following the completion of the functional analysis. Treatment conditions consisted of TO and Physical Guidance (Swartzwelder, 2008). In both conditions 10 preselected commands were presented. In the TO condition if the child initiated compliance within five s the experimenter delivered brief verbal praise. If the child did not initiate compliance within five s the participant was placed in TO consisting of stating a verbal reason why the participant was in TO, verbally or physically guiding the participant away from the experimenter, and withholding attention throughout the TO interval. Repeated returns were implemented if the participant attempted to escape from TO. Following five s of quiet hands, feet, and mouth the participant was released from TO. To control for possible effects of escape extinction altering compliance levels a new command was issued upon release from TO (Swartzwelder, 2008).

The Physical Guidance condition Swartzwelder (2008) implemented was similar to procedures implemented in Kern et al. (2002). In the Physical Guidance conditions the child received brief verbal praise for initiating compliance within five s. If the child did not initiate compliance within five s the experimenter reissued the command while placing her hands on the child's hands or shoulders to physically guide the child to complete the task. A new command was issued approximately five s after physical guidance was complete.

A verification phase was conducted following the presentation of alternating treatments (Swartzwelder, 2008). The most effective treatment was selected for use in the

verification phase. If treatments did not significantly vary in effectiveness, the teacher selected her preferred treatment to implement.

For the attention-maintained participants mean compliance levels across treatment phases were not significantly different. Mean compliance across Physical Guidance and TO conditions was 30% for Wendy. The teacher selected TO for implementation in the verification phase. Wendy's noncompliance remained low in the verification phase ($M = 5\%$). Matthew's compliance across Physical Guidance ($M = 11.4\%$) and TO ($M = 17.14\%$) varied, however by the end of the phase no distinction could be made between the two treatments. The teacher also selected TO to implement in the verification phase. Matthew's noncompliance levels were near zero in the verification phase.

For the escape-maintained participants' compliance across Physical Guidance and TO was also similar. Nick's noncompliance levels in Physical Guidance ($M = 2.86\%$) and TO ($M = 6.67\%$) were comparable by the end of treatment. Teacher selected TO to implement in verification. Nick's noncompliance remained stable at near zero throughout the verification phase. Joshua's noncompliance was low in both TO ($M = 10\%$) and Physical Guidance ($M = 14.3\%$). The teacher selected Physical Guidance as the treatment to implement for the verification phase. Joshua's noncompliance remained at near zero levels in the verification phase.

Results from Swartzwelder (2008) indicate that noncompliance maintained by escape or attention is effectively reduced by both a functionally-based treatment (i.e., Physical Guidance for attention-maintained, TO for escape-maintained) and a nonfunctionally-based treatment over the course of treatment implementation. Limitations to consider in the Swartzwelder study include the possibility of carry-over

effects due to the use of an alternating treatments design with multiple sessions occurring in one day along with the presence of praise during treatment analysis.

Dufrene et al. (2007), Kern et al. (2002), Swartzwelder (2008), and Wilder et al. (2007) all examined the effectiveness of varying treatments on noncompliance with an identified maintaining function. While each study varied in the specific research questions being investigated, reviewing their results as a whole points toward some trends. Functional assessments and functional analyses demonstrated treatment utility for noncompliance in the studies conducted by Dufrene et al. (2007) and Wilder et al. (2007), however these studies do not demonstrate that the implementation of function-based interventions for noncompliance are superior to empirically-supported treatments based upon the topography of noncompliance. Data from Kern et al. (2002) and Swartzwelder (2008) present conflicting results. Data from Kern et al. (2002) cautions the implementation of nonfunctionally-based treatments for noncompliance, whereas Swartzwelder's results indicate no significant difference between the implementation of functionally-based and nonfunctionally-based treatments. Further research is needed to determine if conducting a functional assessment for noncompliance is more efficient and effective than the application of an intervention selected based on its previous success at reducing noncompliance. To assist in making this determination, research needs to continue to investigate the implementation of an empirically-based intervention with children who exhibit both escape-maintained noncompliance and attention-maintained noncompliance (Reimers et al., 1993). TO is an empirically-supported intervention that has been investigated for its use with escape-maintained noncompliance (e.g., Benshoof, 2009; Everett et al., 2007; Needelman, 2008, 2010; Swartzwelder, 2008). While

Swartzwelder (2008) has examined the effectiveness of TO with two attention-maintained children, research is needed to expand the investigation of the effectiveness of TO when applied to attention-maintained behaviors. The focus of the present study is to expand on the application of TO to attention-based noncompliance and escape-maintained noncompliance in order to determine if a functional assessment is necessary to identify an effective intervention for noncompliance.

Functions of TO When Applied to Noncompliance

Functional assessments and functional analyses are conducted to determine the maintaining functions of behavior. To determine the functional properties of TO, the future effects on the behavior that was targeted with its implementation must be evaluated (Solnick, Rincover, & Peterson, 1977; Wilson & Lyman, 1982). If the target behavior increases following the implementation of TO, TO functioned as a reinforcer for that behavior. TO may function as a negative reinforcer by allowing escape from or avoidance of an aversive stimulus even when an enriched time-in environment exists. If the target behavior decreases following the implementation of TO, TO functioned as a punisher for that behavior. TO functioning as a reinforcer, punisher, or having no effect on noncompliance has been demonstrated throughout the literature (Harris, 1985; Solnick et al., 1977; Wilson & Lyman, 1982). Further research is needed to investigate what variables influence the varying functions of TO when applied to noncompliance.

The function of noncompliance has been hypothesized to influence the effectiveness of TO to reduce noncompliance. Despite a lack of evidence supporting the hypothesis, the literature has often suggested that TO should be implemented with attention-maintained noncompliance and that alternative interventions should be

implemented with escape-maintained noncompliance to avoid possible access to negative reinforcement through the implementation of TO with escape-maintained noncompliance (Shriver & Allen, 1996; Sterling-Turner & Watson, 1999). Overall there is limited research examining the function of TO when it is applied to noncompliance maintained by a determined function(s).

Application of TO with Escape Extinction for Noncompliance at The University of Southern Mississippi

In recent years several studies conducted through the University of Southern Mississippi (USM) School Psychology program have contributed to the literature by examining the function of noncompliance prior to the implementation of TO (i.e., Benshoof, 2009; Everett et al., 2007; Needelman, 2008, 2010). These studies have investigated the ability of TO to reduce escape-maintained noncompliance. Specifically, these studies evaluated the effectiveness of TO without escape extinction and TO with escape extinction (TO-EE) to reduce escape-maintained noncompliance.

Everett et al. (2007) conducted the first study at USM to identify the function of noncompliance prior to investigating the effectiveness of TO and TO-EE. Four typically developing children (Isaac, Nick, Zeke, and Tina; four to five years of age) and their parents served as participants. Each child's noncompliance was determined to be escaped-maintained through the completion of a three-step functional assessment. All sessions took place in the university-based outpatient clinic. Compliance and noncompliance served as the dependent variables in the study.

A three-step functional assessment consisting of a descriptive phase, interpretative phase, and a verification phase was conducted to identify the functional properties of

each child's noncompliance (Everett et al., 2007). During the descriptive phase the experimenter conducted a semi-structured interview consisting of the Functional Assessment Informant Record for Parents (FAIR-P) and collected direct-descriptive data during two sessions in which the parent issued 10 unique "do" instructions. During the interpretive phase FAIR-P responses and conditional probability data collected through the analysis of the direct-descriptive observations were reviewed to determine a hypothesis for the function of each child's noncompliance. During the verification phase each parent was trained to implement the procedures of an abbreviated functional analysis consisting of a contingent attention phase and a contingent escape phase. During the contingent attention phase and the contingent escape phase the child accessed parent attention or escape, respectively, upon the exhibition of noncompliance.

Independent variables during the TO procedures included: (a) five-s latency- a period of five s during which a child was allowed time to initiate a response to the parent command, (b) verbal reason- parent stating the misbehavior that served as a precursor to TO, (c) prompting procedure- minimal guidance (verbal and/or physical) necessary to place the child in TO, (d) ignoring-all parent attention withheld throughout the duration of TO, (e) repeated returns- physical guidance of child back to TO if the child escaped from TO, and (f) TO release- contingent upon three to five s of quiet hands, feet, and mouth the child was dismissed from TO. Escape extinction, defined as restating the "do" instruction that resulted in the implementation of TO upon the release from TO, also served as an independent variable in the TO-EE phase. Parents issued "do" commands to their children during baseline, TO, and TO-EE phases. Parents were also trained to deliver praise contingent on compliance in both TO and TO-EE.

Everett et al. (2007) used a nonconcurrent multiple baseline across participants (MBL) design to evaluate the effectiveness of TO and TO-EE. Following the identification of an escape function for each child's noncompliance, children progressed through the experimental phases in the following order: baseline, TO, and TO-EE. Each parent was trained on the specific TO and TO-EE procedures prior to their introduction. During the TO phase participants were able to access escape from the commands that resulted in TO (i.e., participants were not required to comply with commands with which they were previously noncompliant). During TO-EE participants were not able to access escape from the command that resulted in TO because the command was reissued upon release from TO.

Across baseline median compliance levels were 20, 20, 15, and 15% for Isaac, Nick, Zeke, and Tina, respectively. Isaac, Nick, Zeke, and Tina all experienced an increase in median compliance to 40, 45, 60, and 90%, respectively, during TO. Additional increases in median compliance occurred during TO-EE for Isaac and Nick who reached 70% and Zeke who reached 90%. Tina's median compliance remained stable at 90% in the TO-EE phase.

Results from Everett et al. (2007) indicated that TO-EE was effective at establishing or maintaining high levels of compliance in children who exhibited escape-maintained noncompliance. For three of the four participants, TO with an escape extinction component was more effective at reducing noncompliance than TO without an escape extinction component. It is important to acknowledge that the effectiveness of TO-EE to reduce escape-maintained noncompliance was demonstrated only when

followed by TO. The presence of contingent praise throughout the TO and TO-EE phases may have influenced the compliance gains.

Needelman (2008) replicated and extended the study conducted by Everett et al. (2007) by investigating the effectiveness of TO and TO-EE to reduce escape-maintained noncompliance in a classroom setting with three children (Nelson, Lonnie, and Hillary) aged four to seven years. Nelson and Lonnie had no previous diagnoses or medical conditions and Hillary had a previous diagnosis of Down Syndrome. Each child attended a different classroom, and each classroom teacher implemented the experimental procedures. Procedures to identify the functional properties of noncompliance and experimental phases were adapted from Everett et al. (2007). Functional assessment procedures included the administration of the Functional Assessment Informant Record for Teachers (FAIR-T) and the completion of an abbreviated functional analysis to verify the hypothesized function of noncompliance derived from the FAIR-T. Teachers were trained in and conducted a contingent attention condition and a contingent escape condition for the child in their classroom. A nonconcurrent MBL was then used consisting of the following phases in the following order: baseline, TO, and TO-EE.

During the abbreviated functional analysis Nelson, Lonnie, and Hillary complied with an average of approximately 20, 40, and 40% of teacher “do” instructions during the escape phase, respectively (Needelman, 2008). During the attention phase of the abbreviated functional analysis Nelson, Lonnie, and Hillary complied with an average of approximately 60, 60, and 80% of teacher “do” instructions, respectively. Across baseline, TO, and TO-EE Nelson’s compliance averaged 30, 90, and 100%, respectively. Lonnie’s compliance averaged 40, 90, and 90% across baseline, TO, and TO-EE,

respectively. Hillary's compliance averaged 35, 80, and 80% across baseline, TO, and TO-EE, respectively.

For all participants in the Needelman (2008) study TO was effective at substantially increasing compliance levels of children who exhibited escape-maintained noncompliance. The implementation of TO-EE maintained the previously reached high levels of compliance for all participants. The introduction of TO-EE did not result in substantial compliance gains when TO-EE followed TO. All children progressed through the study in the same order which resulted in the evaluation of TO-EE only when it was preceded by TO. It is also notable that contingent praise was present throughout the TO and TO-EE phases which may have influenced the compliance gains.

Benshoof (2009) examined the effectiveness of TO and TO-EE to reduce escape-maintained noncompliance while addressing possible order effects that were present in the studies conducted by Everett et al. (2007) and Needelman (2008). Four children (Kimberly, Don, Kara, and Amy) ranging in age from four to five years who exhibited escape-maintained noncompliance served as participants. Kimberly had a diagnosis of Attention-Deficit/Hyperactivity Disorder. Don, Kara, and Amy had no previous diagnoses or medical conditions. The parent of each child was taught to implement all experimental procedures and all sessions were conducted in a university-based outpatient clinic.

The three-step functional assessment implemented in Benshoof (2009) was adapted from Everett et al. (2007) to determine the function of each child's noncompliance. Baseline, TO, and TO-EE conditions were also adapted from Everett et al. The effects of TO and TO-EE were evaluated through two nonconcurrent MBLs with

the presentation of experimental phases counterbalanced across the MBLs. The first two participants (Kimberly and Don) served in the first MBL and progressed through the experimental phases in the following order: baseline, TO, and TO-EE. The third and fourth participants (Kara and Amy) served in the second MBL and progressed through the experimental phases in the following order: baseline, TO-EE, and TO. During the verification phase, each child's highest noncompliance level occurred during an escape phase which supported the escape-maintained noncompliance hypothesis for each child.

Kimberly and Don served as participants in the first MBL. Across baseline, TO, and TO-EE Kimberly's compliance averaged 47, 80, and 92%, respectively. Don's compliance averaged 48, 85, and 94%. Kara and Amy served as participants in the second MBL. Across baseline, TO-EE, and TO Kara's compliance averaged 43, 86, and 90%, respectively. Amy's compliance averaged 52, 93, and 93% across baseline, TO-EE, and TO, respectively. Visual analyses of participant data across conditions indicated no substantial differences in compliance levels between TO and TO-EE in either the first or second MBL. Benshoof (2009) provides preliminary support for the effectiveness of TO-EE to reduce escape-maintained noncompliance when it follows baseline, however replication is needed (Benshoof, 2009).

Needelman (2010) continued research on the application of TO and TO-EE by conducting a second study in the classroom setting with four typically developing children ranging in age from 7- to 8-years-old (Ken, Matt, Eric, and Keith) that each attended a different classroom. Each child exhibited 40% or less compliance to teacher instructions and was determined to exhibit escape-maintained noncompliance through the administration of a FAIR-T and an abbreviated functional analysis. Needelman took

potential order effects into account by conducting two nonconcurrent multiple baseline across participants designs with a crossover element to compare levels of compliance across baseline, TO, and TO-EE phases. Components of baseline, TO, and TO-EE were replicated from Needelman (2008).

Ken and Keith participated in one dyad and progressed through the experimental phases in the following order: baseline, TO, and TO-EE (Needelman, 2010). Compliance levels across baseline, TO, and TO-EE were 30, 90, and 90% for Ken, respectively. Compliance levels for Keith were 30, 70, and 95% across baseline, TO and TO-EE, respectively. Matt and Eric participated in the second dyad and progressed through the experimental phases in the following order: baseline, TO-EE, and TO. Matt complied with an average of 40, 90, and 100% of commands across baseline, TO-EE, and TO, respectively. Eric's mean compliance across baseline, TO-EE, and TO was 30, 80, and 90%, respectively.

All participants in the Needelman (2010) study experienced significant increases in compliance following baseline with the introduction of either TO or TO-EE. Differences in compliance found across TO and TO-EE were minimal based on visual analysis and multilevel modeling. Needelman (2010) provides replication of TO and TO-EE effectively increasing compliance in children who exhibit escape-maintained noncompliance which was also demonstrated in Needelman (2008) and Benshoof (2009).

The results from Everett et al. (2007) stand in partial contrast to the results from Needelman (2008, 2010) and Benshoof (2009). Results from Everett et al. indicated that higher levels of compliance in children who exhibit escape-maintained noncompliance were achieved in TO-EE than in TO. Data from Needelman (2008, 2010) and Benshoof,

however, indicated that the implementation of TO-EE following TO did not result in a substantial increase in compliance levels; rather TO-EE was effective at maintaining the high levels of compliance that were achieved in the preceding TO phase. Data from Benshoof and Needelman (2010) suggested that regardless of whether TO or TO-EE follows baseline, high levels of compliance are attained by children who exhibit escape-maintained noncompliance upon implementation of TO or TO-EE. Additionally, data suggested that TO and TO-EE were effective at maintaining high levels of compliance that were established by the other preceding TO procedure.

Across Everett et al. (2007), Needelman (2008, 2010), and Benshoof (2009) there is some question, however, regarding the extent to which the identified function of noncompliance for the children was purely escape, attention, or both. Across studies children exhibited noncompliance during attention conditions indicating that multiple maintaining functions of noncompliance were likely present for participants. Contingent praise was also present in all TO and TO-EE phases across these studies. It is possible that the presence of contingent praise may have influenced compliance gains. While the presence of contingent praise in TO and TO-EE presents a limitation from a research perspective, the presence of contingent praise is consistent with appropriate practice when implementing interventions in applied practice.

Further research is needed to replicate the use of TO-EE following baseline with individuals who exhibit escape-maintained noncompliance. Additional research is also needed to assess the effects of TO-EE on attention-maintained noncompliance. Research is limited in systematically assessing the effectiveness of TO to decrease attention-maintained noncompliance. Examination of the effectiveness of TO to reduce escape-

maintained noncompliance and attention-maintained noncompliance is needed to assess the benefits of conducting functional assessments and functional analyses for noncompliance since the value of identifying the function of noncompliance is to efficiently implement an effective treatment (Newcomer & Lewis, 2004).

Purpose of the Present Study

The best method to select an empirically-supported treatment has not yet been identified. Although an hypothesis exists that function-based treatments are more time efficient and more effective than non-function-based treatments (e.g., Iwata et al., 1982), research comparing function-based to non-function-based interventions has not always supported this hypothesis (e.g., Ingram et al., 2005; Newcomer & Lewis, 2004; Schill et al., 1998). Research on an intervention's effectiveness depending on the function of that behavior is also limited.

The prevalence of noncompliance (Bernal et al., 1980; Charlop et al., 1987; Forehand & McMahon, 1981; Henry, 1987), its potential to hinder a child (Rhode et al., 1993), and the debate focusing on the effectiveness of TO to reduce escape-maintained noncompliance (e.g., Benshoof, 2009; Everett et al., 2007; Needelman, 2008, 2010) suggest the need for additional research on the utility of TO to reduce noncompliance depending on its maintaining function (i.e., escape versus attention) in the present investigation. The examination of the differential effects of TO depending on the functional properties of noncompliance will provide data on the treatment utility of identifying the functional properties of noncompliance.

The TO procedures implemented and systematically varied by USM researchers have demonstrated that TO can effectively reduce escape-maintained noncompliance

(Benshoof, 2009; Everett et al., 2007; Needelman, 2008, 2010). Because escape and attention serve as common maintaining functions of noncompliance (Reimers et al., 1993), future research is needed to evaluate if TO effectively reduces attention-maintained noncompliance. The outcomes of implementing TO with attention-maintained noncompliance and escape-maintained noncompliance will provide further evidence on the best selection method of an intervention by indicating if TO is differentially effective depending on the maintaining function of noncompliance. If TO is differentially effective on the reduction of noncompliance depending on its function, the data would suggest that determining the function of noncompliance prior to implementing an intervention may be the most efficient method to providing effective interventions to noncompliant children. If TO is not differentially effective on the reduction of noncompliance depending on its function, the data would suggest that implementing evidence-based TO without identifying the function of noncompliance may be the most efficient method to providing effective interventions to noncompliant children.

Given that TO-EE has been demonstrated to establish and maintain high levels of compliance in response to “do” commands among children who exhibit escape-maintained noncompliance, TO-EE is a logical procedure to use to investigate the effectiveness of TO to reduce attention-maintained noncompliance. Investigating the effectiveness of TO-EE to reduce escape-maintained noncompliance and attention-maintained noncompliance will add valuable data to the determination of the best method (i.e., function-based or success with previous behaviors of similar topographies) to select a treatment for a child who exhibits noncompliance.

Research Questions

The effectiveness of TO-EE to reduce escape-maintained noncompliance following baseline needs to be replicated from Benshoof (2009) and Needelman (2010). Additionally, the effectiveness of TO-EE to reduce attention-maintained noncompliance needs to be investigated.

The following research questions will be addressed in the present study:

1. Is TO-EE effective at increasing compliance to parents' first-time issued "do" instructions for children whose noncompliance is escape-maintained?
2. Is TO-EE effective at increasing compliance to parents' first-time issued "do" instructions for children whose noncompliance is attention-maintained?

CHAPTER II

METHOD

Participants

The procedures used in this study were approved by the USM and the University of Nebraska Medical Center (UNMC) Institutional Review Boards prior to implementation (see Appendix A). Four children referred to an outpatient clinic for compliance concerns served as participants in this study. All children exhibited compliance levels below 60%. The functional properties of noncompliance for each child were identified through the completion of a functional assessment (FA) consisting of the administration of a semi-structured interview (i.e., FAIR-P) and the completion of an abbreviated functional analysis. All children who participated were white males. William was two-years-old, David and Wade were four-years-old, Mike was seven-years-old. William, David, and Wade had no preexisting diagnoses. Mike had a diagnosis of Autistic Disorder. William and David exhibited attention-maintained noncompliance. Wade and Mike exhibited escape-maintained noncompliance. Each child's parent provided written consent for their child and also served as participants in this study (see Appendix B).

Setting

All sessions were conducted in university-affiliated clinics. Each clinic room contained age appropriate stimuli (e.g., various toys for children) that served as targets for the parent-selected commands. Unobtrusive video equipment was present in each session. Each parent-child dyad was together in a clinic room throughout the duration of the FA and the experimental phases of this study. Due to variations in clinic spaces across

locations, Mike and William's parents implemented the procedures in a room separate from the experimenter. The experimenter was in the same room with Wade and David's parents while they implemented procedures. The experimenter prompted each parent to deliver commands and provided each parent with feedback throughout FA and experimental sessions. The experimenter viewed sessions through a live recording for William and through a one-way mirror for Mike. Mike and William's parents received prompts and feedback through a one-way radio. Throughout Wade and David's sessions prompts and feedback were provided through brief verbal statements.

Data Collection

Data were collected through the use of audiovisual equipment for all observation periods (i.e., screening session, FA, baseline, and TO-EE phases). Each observation period was recorded and reviewed by the experimenter. Review of several observation sessions was completed by trained graduate students to establish interobserver agreement (IOA).

During the FA observations the following adult behaviors were coded: (a) command- parent "do" instruction delivered to the child, (b) escape- removing all prompts, verbal and physical, and communication for 10 s contingent on child noncompliance, and (c) attention- verbal comments referring to the child's noncompliance exhibited from the previous command and/or the parent touching the child (Benshoof, 2009; Everett et al., 2007). Data collection for the FA observations was accomplished through the use of event recording (see Appendix C).

During baseline, TO-EE, and contingency reversal, the following adult behaviors were coded: (a) type of command (i.e., initial or reissued), (b) form of command (i.e., "do" instruction), (c) five s latency, (d) contingent praise, (e) brief verbal reason,

(f) administration of TO, (g) ignoring, (h) repeated returns if escape was attempted, (i) TO release, and (j) escape extinction (see Appendix D). The type of command refers to whether it was the first time the parent issued the command (i.e., initial) or if the parent was reissuing a command. Coding for initial and reissued commands allowed for the evaluation of parent implementation of escape extinction. The form of the parent command was coded as a “do” command or as an “other” command if it did not coincide with the “do” format (Neef et al., 1983). The five s latency refers to a period of 5 s following the delivery of a parent command during which the child was allowed time for response initiation. Contingent praise was coded when parent verbal and/or physical attention was provided contingent upon compliance. A verbal reason was delivered concurrent with the administration of TO. The verbal reason was the neutral vocal delivery of a brief statement of the reason for TO implementation (i.e., “TO for not putting the truck in the box”). The administration of TO varied from a verbal instruction to physical guidance to the TO location. The minimal level of parent prompting necessary to get the child in the TO location was used. Ignoring consisted of the parent not making eye contact with, talking to, or touching the child throughout the duration of TO. An exception to the no touching rule occurred contingent on child escape from TO when repeated returns were necessary. Repeated returns consisted of physically guiding the child back to TO if the child escapes TO. Release from TO occurred contingent upon three to five s of quiet hands, feet, and mouth (i.e., appropriate verbal and physical behavior). The escape extinction component consisted of the parent reissuing the “do” instruction that resulted in the implementation of TO upon child release from TO. TO was implemented contingent upon noncompliance to initial and reissued instructions and

praise was delivered contingent upon compliance to initial and reissued instructions (Benshoof, 2009).

Parents were instructed to deliver “do” commands to their child that could be completed within the clinic room throughout this study. The experimenter prompted parents to deliver a command approximately once every 30 s in the FA phase and once every minute in baseline, TO-EE, and contingency reversal phases (Benshoof, 2009; Everett et al., 2007; Needelman, 2008, 2010).

Dependent Measures

During the FA, child compliance was coded. Child compliance was defined as the child initiating compliance within 5 s of instruction delivery (see Appendix C). Child compliance and escape from TO were coded during baseline and TO-EE (see Appendix D). Child compliance was defined in the same manner as in the FA procedures. Escape from TO was recorded when the child moved two ft (0.61 m) away from the designated TO location.

During the FA child compliance percentages were calculated through the examination of the number of initial parent commands that the child complied with divided by the 20 initial parent commands delivered in each session. During baseline, TO-EE, and contingency reversal phases compliance percentages were calculated as the number of initial parent commands with which the child complied divided by the 20 initial parent-delivered commands.

Design

The effects of TO-EE on attention-maintained noncompliance and escape-maintained noncompliance were evaluated through the use of four contingency reversal

designs. In each contingency reversal baseline was the initial condition which was followed by the TO-EE phase. Following TO-EE, a contingency reversal occurred. TO-EE was re-implemented following the contingency reversal phase. Treatment effects were determined by visual analysis of level, trend and variability in the data. One to three experimental sessions of the same experimental phase occurred on the same day. Sessions were separated with a break that was a minimum of 5-min.

Procedure

Screening Session

All participants underwent a screening session to establish that the child's compliance level was below 60% to parent instructions. The experimenter instructed each parent to deliver 20 "do" instructions in the same manner they usually use with their child. All 20 "do" commands were given in one session and the parent was not prompted when to deliver a command. Children who exhibited noncompliance below 60% to parent issued instructions progressed to the identification of the function of their noncompliance (FA). All children who did not meet the 60% eligibility requirement were offered similar services through the university-affiliated clinic.

Functional Assessment

The administration and review of a functional assessment interview and the completion of an abbreviated functional analysis was implemented to determine the function of each child's noncompliance (Needleman, 2008). The abbreviated functional analysis conditions (i.e., escape and attention) were derived from review of Reimers et al. (1993) noting that noncompliance can be maintained by attention and escape. Additionally, prior to progressing to the abbreviated functional analysis, a hypothesized

function of noncompliance being either attention or escape was derived through the use of the FAIR-P. Through the combination of review of literature and hypothesized function derived from the FAIR-P, the escape condition and the attention condition were selected to implement in the abbreviated functional analysis.

FAIR-P. Hypotheses regarding the function of a child's noncompliance were formed through the completion of the FAIR-P in an interview format that was completed by the experimenter with the child's parent (see Appendix E; Everett, 2007). The FAIR-P is an instrument that evaluates the function of a child's behavior based on parent responses. The FAIR-P has been adapted from the FAIR-T (Edwards, 2002). Information collected from the FAIR-P includes a description of problem behaviors, the identification of environmental and physical variables that are predictive of problem behaviors, and the identification of variables that possibly maintain the problem behaviors.

Parent Training. Following the completion of the FAIR-P parents were trained on the experimental conditions comprising the abbreviated functional analysis. The abbreviated functional analysis included contingent attention and contingent escape conditions (Reimers et al., 1993). Parent training included both didactic and direct training (Sterling-Turner, Watson, & Moore, 2002) consisting of written instructions (see Appendix F; Benshoof, 2009; Everett, 2005), role-playing, and experimenter monitoring. Corrective feedback was also provided to each parent throughout experimental conditions. In order to implement the abbreviated functional analysis, each parent demonstrated 100% procedural integrity for each condition during training. Procedural integrity was assessed through the completion of the Abbreviated Functional Analysis

Observation Data Collection/Procedural Integrity Checklist (see Appendix C; Benshoof, 2009).

Contingent attention condition. Evaluation of the possible maintaining function of attention was assessed through the completion of the contingent attention condition. The experimenter prompted each parent to deliver 20 unique “do” instructions approximately once every 30 s. Contingent on noncompliance, the parent made verbal statements referring to the noncompliance exhibited to the most recent command. Contingent on compliance, the parent ignored the compliance to the most recent command and continued interacting with the child (Benshoof, 2009; Everett et al., 2007).

Contingent escape condition. Examination of the possible maintaining function of escape was assessed through the completion of the contingent escape condition. Twenty unique experimenter prompted parent “do” commands were delivered at the approximate rate of one command per 30 s. Contingent on noncompliance, the parent removed all verbal and physical prompts as well as communication from the child for a period of 10 s. Contingent on compliance, the parent ignored the compliance and continued interacting with the child (Benshoof, 2009; Everett et al., 2007).

Implementation of the Abbreviated Functional Analysis. The parent-implemented abbreviated functional analysis established the functional properties of each child’s noncompliance. The first abbreviated functional analysis condition was randomly selected. The following abbreviated functional analysis condition was the condition that was not selected for the first abbreviated functional analysis phase. Both functional analysis conditions were implemented on the same day and were separated by a 10-min break. To determine that a child’s noncompliance was maintained by attention or escape

the child demonstrated a noncompliance level 15% above the alternate abbreviated functional analysis condition. The Abbreviated Functional Analysis Observation Data Collection/Procedural Integrity Checklist (see Appendix C; Benshoof, 2009) was used to collect data in the abbreviated functional analysis.

The first two children who exhibited compliance levels below 60% to parent-issued instructions and whose noncompliance was maintained by attention served as participants in the study. The first two children who exhibited compliance levels below 60% to parent-issued instructions and whose noncompliance was maintained by escape also served as participants in the study. All children who do not meet these participation criteria were offered similar services through the university-affiliated clinic.

A total of 26 parent-child dyads consented to participate in the study. Out of the 26 families that consented to participate, four children (15.4%) both qualified for and completed the study, four children (15.4%) qualified for the study but did not attend sessions to complete the study, four children (15.4%) failed to qualify for the study due to compliance levels above 60%, six children (23.0%) did not qualify for the study due to noncompliance being maintained by both escape and attention, and eight children (30.8%) did not attend their screening appointments. All children who did not meet criteria to participate in the study were offered similar services through the university affiliated clinic.

Baseline

Following the completion of the FA, baseline data were collected. During baseline parents delivered 20 unique experimenter-prompted commands at the approximate rate of one command per minute. The maximum duration of a single baseline session was 30 min. Parents were instructed to address compliance and

noncompliance in their usual manner. Baseline data provided a current level of compliance for each child. Data were also collected on the implementation of the TO-EE components to establish a baseline level of use for each component prior to the introduction of TO-EE (see Appendix D; Benshoof, 2009).

TO-EE and Contingency Reversal Parent Training

Parents were trained in the TO-EE and contingency reversal procedures in the same manner as they were taught the abbreviated functional analysis conditions. Each parent was trained on TO-EE following the completion of baseline. Each parent was trained on the contingency reversal procedures following the completion of the initial TO-EE phase. Procedural integrity for TO-EE and contingency reversal components was assessed through the use of the Baseline, TO-EE, and Contingency Reversal Observation Data Collection/ TO-EE and Contingency Reversal Procedural Integrity Checklist (see Appendix D; Benshoof, 2009).

TO-EE

Components of TO-EE included: (a) type of command (i.e., initial or reissued), (b) form of command (i.e., “do” instruction), (c) five s latency, (d) contingent praise, (e) verbal reason, (f) administration of TO, (g) ignoring, (h) repeated returns, (i) TO release, and (j) escape extinction (see Data Collection for specification of TO-EE components). The maximum duration of each session was 30 min. Twenty experimenter prompted, unique parent “do” commands were delivered in each TO-EE session unless the 30 min time limit was reached prior to reaching 20 commands. The experimenter prompted the parent to deliver a command at the beginning of the session and approximately 45 s after the child exhibited compliance. Following child compliance, parents delivered praise in

the form of physical and/or verbal attention. Child noncompliance resulted in a statement of why the child must go to TO (i.e., verbal reason) and the administration of TO.

Parents ignored their child while the child was in TO with the exception of necessary repeated returns. Each parent released the child from TO (e.g., “You are quiet, come out of TO”) upon child exhibition of appropriate physical and verbal behavior for three to five s. Following release from TO each parent reissued the command that resulted in the administration of TO. The escape extinction component resulted in the child being repeatedly placed in TO until the child complied with the reissued command. All consequences (i.e., contingent praise, TO) were contingent on the child’s response to the most recent parent command (Benshoof, 2009; Everett et al., 2007; Needelman, 2008).

Contingency Reversal

Procedures in the contingency reversal phase consisted of 20 unique experimenter-prompted “do” commands delivered at the approximate rate of one command per minute. The consequences for noncompliance varied depending upon the identified function of noncompliance for each participant. The consequences following compliance and noncompliance for the two participants with escape-maintained noncompliance consisted of the procedures outlined in the contingent escape condition in the abbreviated functional analysis. The consequences following compliance and noncompliance for the two participants with attention-maintained noncompliance consisted of the procedures outlined in the contingent attention condition in the brief experimental analysis.

Reliability and Interobserver Agreement

Graduate students served as secondary observers. Each graduate student had previous experience collecting data on compliance cases in clinical settings. Coding procedures were taught through reading study methods, verbal discussion of procedures with experimenter, and review of previously recorded experimental sessions.

The functional assessment was reviewed for reliability through multiple evaluations of the data obtained in the FAIR-P and the abbreviated functional analysis. The evaluation of the functional assessment was completed by the experimenter and a maximum of two other observers. If the experimenter and one observer agreed on the hypothesis for the child's noncompliance and the child fit all participation criteria, the child continued in the study. If the two independent evaluations did not render the same hypothesis for the functional properties of the child's noncompliance, a second observer who was blind to the previous disagreement between the experimenter and initial observer also reviewed the functional assessment. The need for a third individual was not necessary throughout the completion of this study

IOA was calculated through the review of the videotaped abbreviated functional analysis, baseline, TO-EE, and contingency reversal phases through the use of event recording. IOA was calculated as the total number of agreements (occurrence and nonoccurrence) divided by the total of agreements plus disagreements and multiplied by 100. IOA was collected on each dependent and procedural variable. Reliability for each observation was established if the IOA calculation was at least 80%.

IOA data were collected for 39% of all sessions. IOA averaged 99.4% across all measured variables. The mean IOA for parent behaviors was 99.4% (range = 80.0% -

100.0%). The mean IOA for child behaviors was 99.3% (range = 95.0% - 100.0%).

Refer to Table 1 for IOA data from the abbreviated functional analysis and Table 2 for IOA data regarding baseline, TO-EE, contingency reversal, and TO-EE. If more than one session was reviewed for the condition, the mean IOA percentage is depicted.

Procedural Integrity

Procedural integrity (Gresham, 1989) was assessed throughout each observation session of experimental phases. Contingent praise, components of TO-EE, and components of contingency reversal were evaluated for treatment integrity (see Appendix C; Benshoof, 2009; Everett et al., 2007). During baseline, TO-EE, and contingency reversal parent delivery of praise contingent on compliance was assessed by dividing the total number of instances of contingent praise by the total instances of compliance and multiplying by 100. Procedural integrity for TO-EE and contingency reversal components, with the exception of repeated returns, was assessed by dividing the total number of times the parent implemented the specific component (e.g., verbal reason) by the total instances of noncompliance and multiplying by 100. If time-out was not administered, the components of TO-EE were not applicable to be calculated (this is noted with the asterisks present in Table 1). Repeated return procedural integrity was calculated by dividing the number of TO administrations in which repeated returns were implemented by the number of TO administrations in which the child escaped TO and multiplying by 100. Contingent on procedural integrity below 80% on any single component, the parent was retrained on TO-EE procedures. Mike's mom was retrained on the five s latency component and the release component following one TO-EE session. David's mom was retrained on the five s latency component once following a Contingency Reversal session, the Ignoring component following one TO-EE session,

and on the Verbal Reason component following one TO-EE session. Wade and William's mothers did not require retraining on any components. Refer to Table 1 for procedural integrity percentages across phases for all mothers.

Table 1

Mean Procedural Integrity Percentages across Baseline, TO-EE, Contingency Reversal, and TO-EE

Participant	Phase			
	Baseline	TO-EE	Contingency Reversal	TO-EE
Mike				
Initial Command	98%	100%	100%	100%
Do Instruction	100%	100%	100%	100%
five s Latency	65%	89%	97%	98%
Praise	0%	100%	0%	99%
Verbal Reason*	n/a	100%	n/a	100%
TO Administered	0%	100%	0%	100%
Ignoring*	n/a	100%	n/a	97%
Repeated Returns*	n/a	100%	n/a	100%
TO Release*	n/a	80%	n/a	100%
Escape Extinction*	n/a	100%	n/a	97%
Reversal	0%	0%	100%	0%

Table 1 (continued).

Participant	Phase			
	Baseline	TO-EE	Contingency Reversal	TO-EE
Wade				
Initial Command	100%	100%	98%	98%
Do Instruction	100%	100%	100%	100%
five s Latency	100%	100%	100%	100%
Praise	0%	100%	0%	100%
Verbal Reason*	n/a	100%	n/a	100%
TO Administered	0%	100%	0%	100%
Ignoring*	n/a	100%	n/a	100%
Repeated Returns*	n/a	n/a	n/a	n/a
TO Release*	n/a	100%	n/a	100%
Escape Extinction*	n/a	100%	n/a	100%
Reversal	0%	0%	100%	0%
William				
Initial Command	94%	100%	100%	100%
Do Instruction	100%	100%	100%	100%
five s Latency	61%	94%	95%	96%
Praise	60%	99%	0%	98%
Verbal Reason*	n/a	100%	n/a	100%

Table 1 (continued).

Participant	Phase			
	Baseline	TO-EE	Contingency Reversal	TO-EE
William				
TO Administered	0%	100%	0%	100%
Ignoring*	n/a	100%	n/a	100%
Repeated Returns*	n/a	n/a	n/a	n/a
TO Release*	n/a	100%	n/a	100%
Escape Extinction*	n/a	100%	n/a	100%
Reversal	0%	0%	100%	0%
David				
Initial Command	95%	100%	99%	100%
Do Instruction	97%	100%	100%	100%
five s Latency	45%	96%	95%	96%
Praise	32%	96%	0%	98%
Verbal Reason*	n/a	79%	n/a	100%
TO Administered	0%	100%	0%	100%
Ignoring*	n/a	100%	n/a	87%
Repeated Returns*	n/a	n/a	n/a	n/a
TO Release*	n/a	100%	n/a	100%
Escape Extinction*	n/a	100%	n/a	100%

Table 1 (continued).

Participant	Phase			
	Baseline	TO-EE	Contingency Reversal	TO-EE
David				
Reversal	0%	0%	100%	0%

Treatment Acceptability

Each parent was asked to what extent they found TO-EE acceptable (i.e., effective and fair; Finn & Sladeczek, 2001). To assess parent acceptability of TO-EE 17 questions from the Treatment Acceptability Rating Form-Revised (TARF-R, see Appendix G; Reimers, Wacker, Cooper, & DeRaad, 1992) pertaining to treatment acceptability were administered to parents following the completion of the final TO-EE phase. TARF-R items are presented in a seven-point Likert-type format. The TARF-R has demonstrated internal consistency reliabilities of (i.e., α coefficient) .92 and construct validity evidenced by approximately 47% of variance on 16 out of the 17 factors was accounted for by a single factor in a factor analysis (Finn & Sladeczek, 2001). Scores from the TARF-R are categorized into three ranges: (a) high acceptability-scores ranging from 85-199, (b) average acceptability-scores ranging from 52-84, and (c) low acceptability-scores ranging from 17-51.

Data Analysis

Experimenter review of parent FAIR-P responses was used to develop a hypothesis of each child's noncompliance. To confirm the maintaining function of each

child's noncompliance, the percentage of noncompliance was computed for each of the abbreviated functional analysis condition. If the child's noncompliance level in one condition was 15% above the level of the other condition, it was determined that the child's noncompliance was maintained by the corresponding phase. Visual analysis of level, trend, and variability was used to evaluate treatment effects throughout experimental phases.

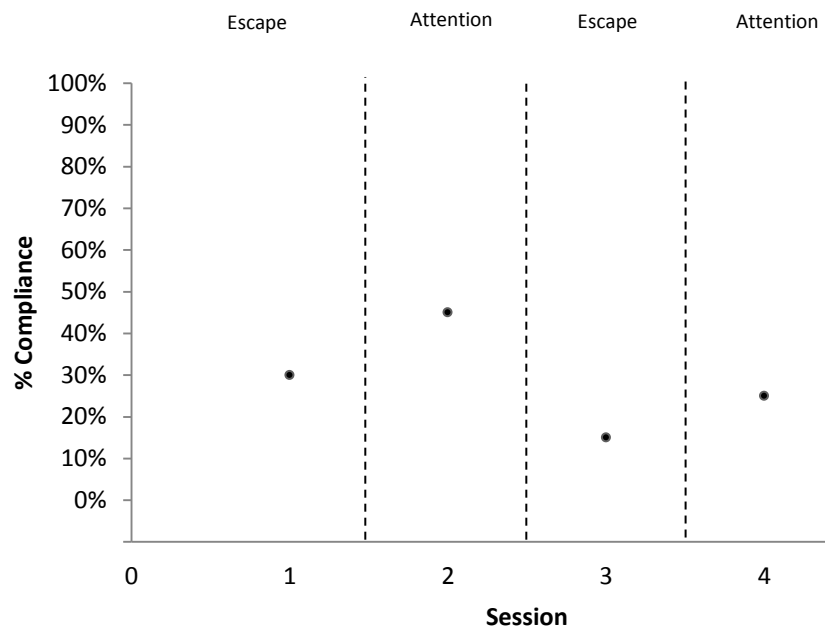
CHAPTER III

RESULTS

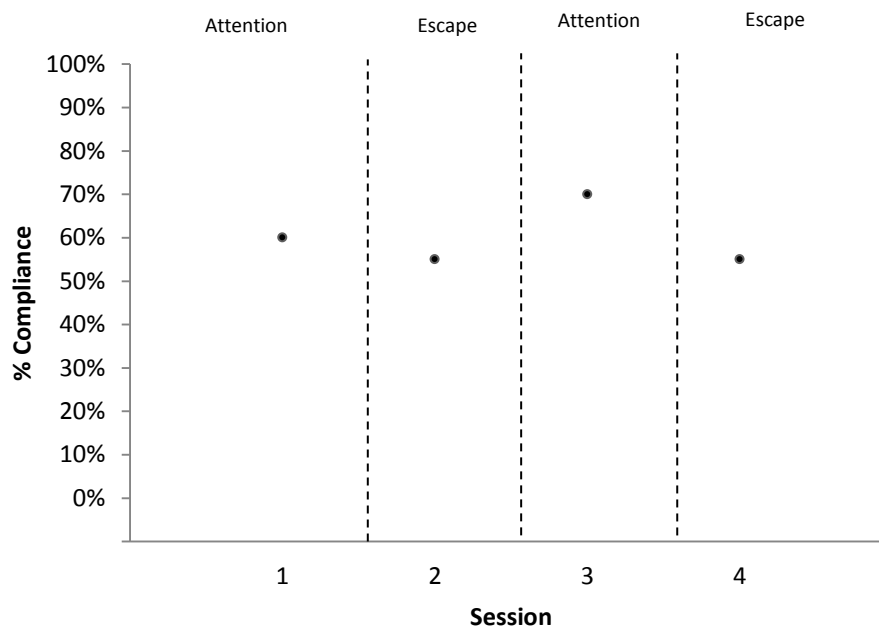
Participant compliance levels in the screening phase for Mike, Wade, William, and David were 30, 25, 40, and 45%, respectively. Participant compliance percentages across the brief FA conditions are presented in Figure 1. All children exhibited noncompliance in both escape and attention conditions indicating that participant compliance was at least partly maintained by both attention and escape. Mike and Wade's lowest level of compliance was exhibited in the escape condition. The brief FA confirmed the hypotheses drawn from the FAIR-P that Mike and Wade's noncompliance was maintained predominantly by escape. William and David's lowest level of compliance was exhibited in the attention condition. Predominantly attention-maintained noncompliance hypotheses from the FAIR-P for William and David were confirmed through the brief FA.

Figure 2 illustrates the participant's compliance percentages to initial parent commands across all phases. Mike and Wade exhibited escape-maintained noncompliance. During baseline, Mike exhibited a decreasing trend with a mean compliance of 18%. Upon entry into the first TO-EE condition, Mike exhibited an immediate increase in level (from 10% compliance in the final baseline session to 70% compliance in first TO-EE session) along with an increasing trend, resulting in a mean compliance level of 82% for the first TO-EE condition. Mike exhibited an immediate decrease in level from 90% compliance in the final TO-EE session to 30% compliance in his first exposure to the contingency reversal and then a further decrease to 10% compliance in the next two sessions of the contingency reversal. Mike's compliance

Mike FA



Wade FA



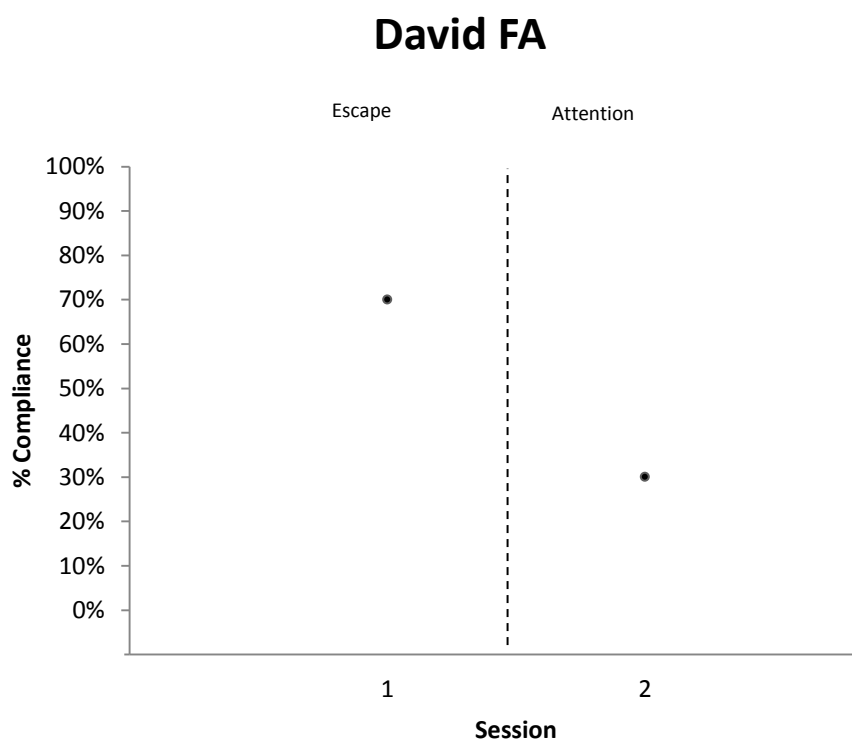
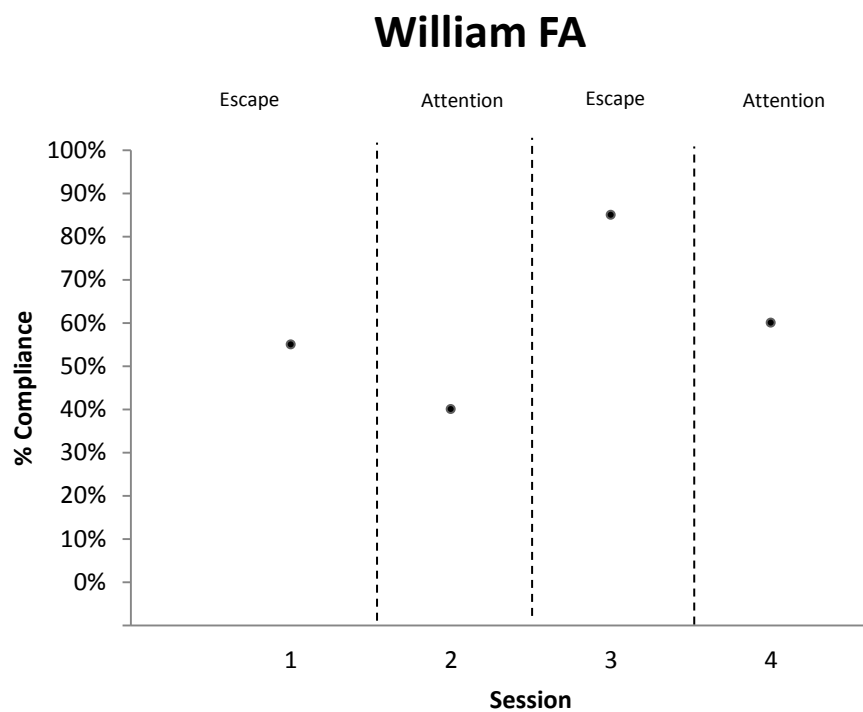
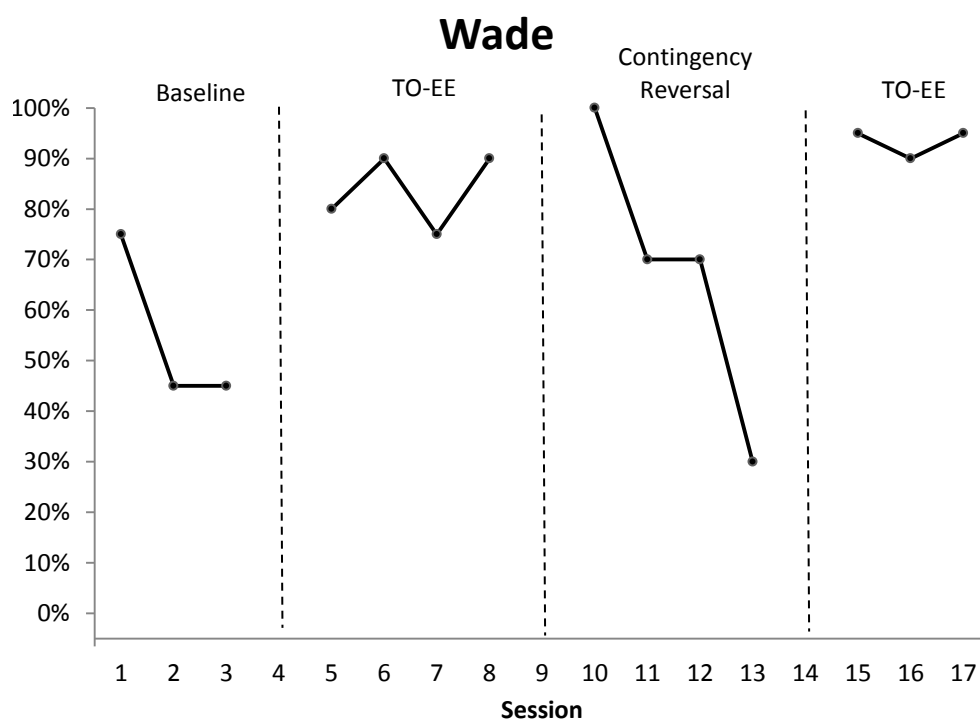
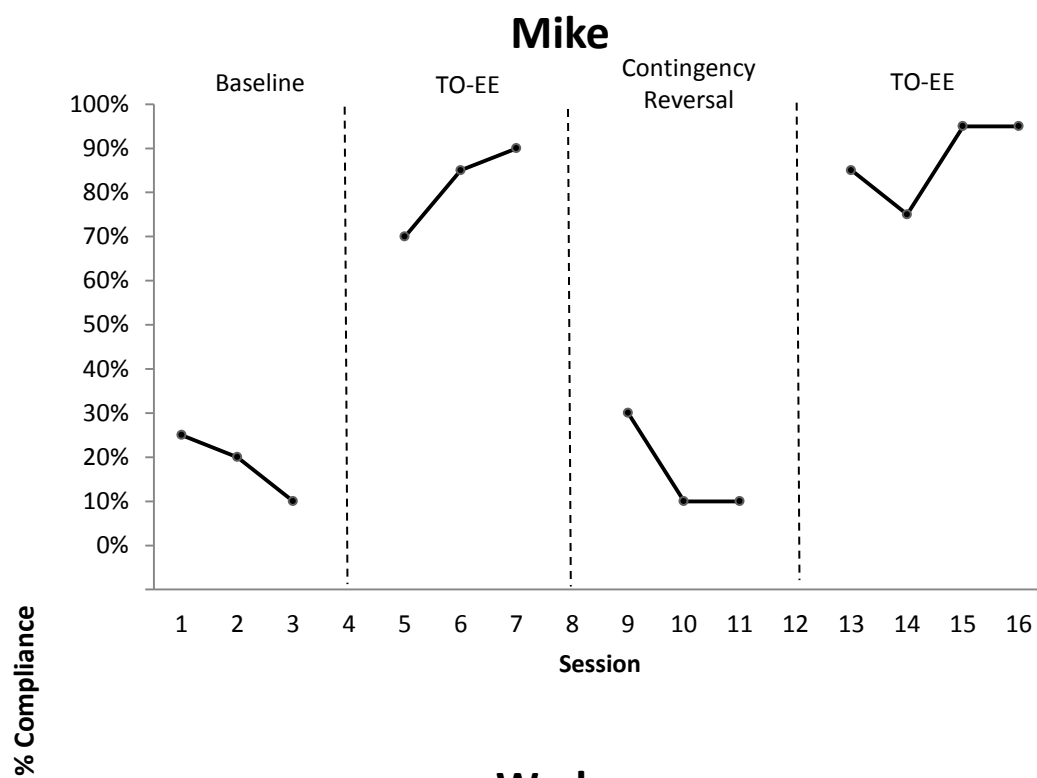


Figure 1. Compliance Percentages Across Abbreviated Functional Analysis Conditions.



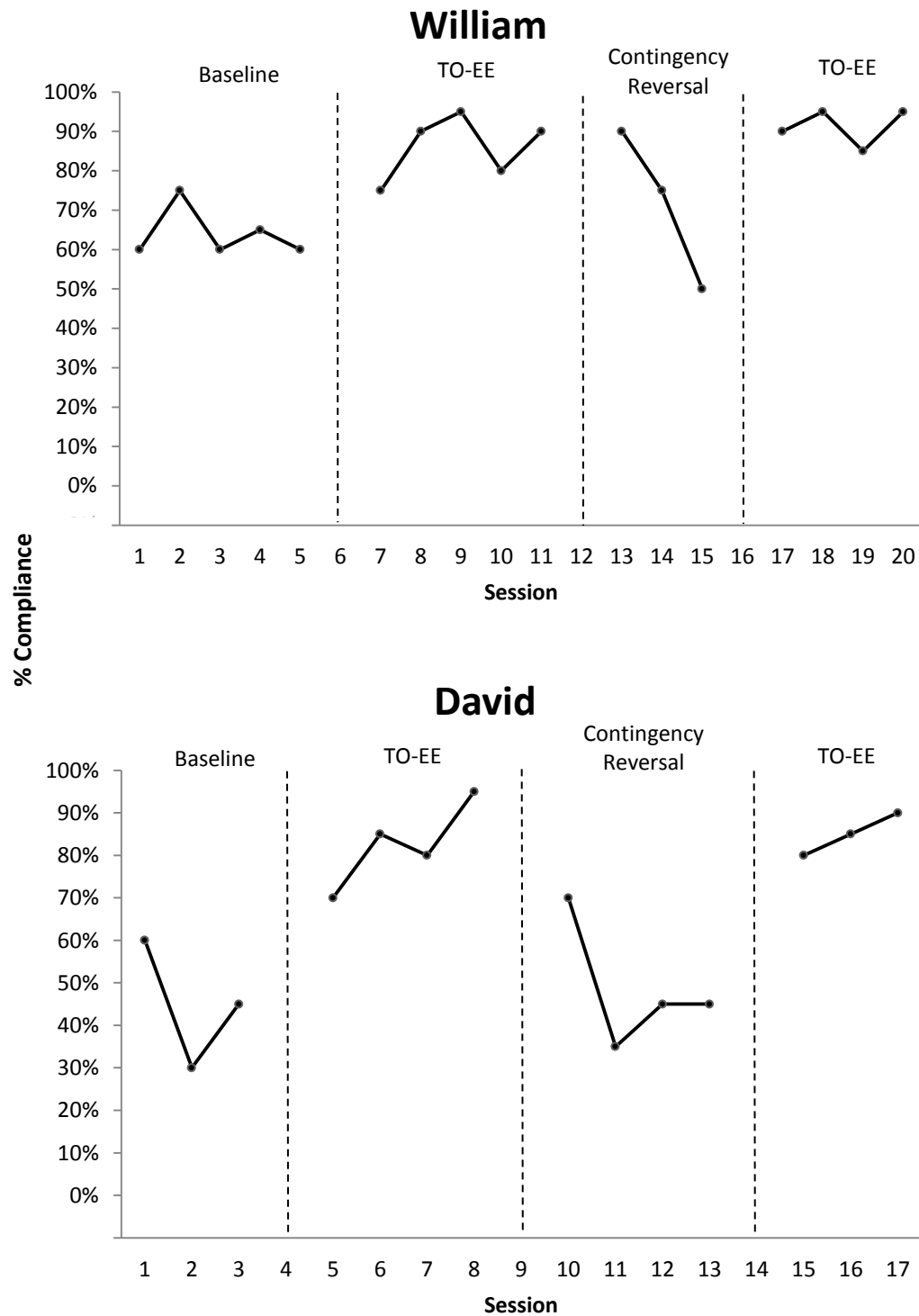


Figure 2. Compliance Percentages to Initial Parent Commands Across All Phases.

remained low (range 30% to 10%) throughout contingency reversal with a mean level of compliance of 17%. Upon Mike's transition from contingency reversal to the reinstatement of TO-EE, an immediate change of level occurred which is indicated by Mike's 10% compliance level in the final contingency reversal session to 85% compliance level in the first session returning to TO-EE. An increasing trend was present in Mike's return to TO-EE with a mean compliance level of 88%.

In Wade's first baseline session he exhibited compliance of 75% which then decreased to 45% in the two subsequent sessions, resulting in mean compliance of 55%. Wade's initial exposure to TO-EE resulted in an immediate increase in level (from 45% compliance in final baseline session to 80% compliance in the first TO-EE session) along with relative stability in compliance (range 75%-90%). Wade's mean compliance during TO-EE was 84%. Wade did not experience an immediate change of level when he transitioned (90% compliance in the final TO-EE session to 100% compliance in the first contingency reversal session) to contingency reversal. However, Wade experienced a continually decreasing trend with a final contingency reversal level of 30% compliance. Wade's mean compliance during contingency reversal was 68%. Wade experienced an immediate change in level from 30% compliance in the final session of the contingency reversal phase to 95% in the initial session of re-implementation of TO-EE. Wade's data in the second exposure to TO-EE were stable (range 90%-95%) with mean compliance of 93%.

William and David exhibited attention-maintained noncompliance. During baseline William exhibited stable (range 60% to 75%) compliance with a mean compliance level of 64%. Upon transition into the first presentation of TO-EE, William

exhibited an increase in level from 60% in the final baseline session to 75% in the initial TO-EE session. Slight variability was present in William's initial TO-EE data (range 75% to 95%). Three out of the five data points in William's initial TO-EE phase were at or above 90% contributing to a gradually increasing trend throughout the phase.

William's transition from the initial presentation of TO-EE to contingency reversal exhibited a change of level which is evident by comparing his compliance in the final session of TO-EE (90%) to his compliance in the second session of contingency reversal (75%). William exhibited a continuously decreasing trend with the final session in contingency reversal of 50% compliance. During contingency reversal William exhibited a mean compliance level of 72%. Upon return to TO-EE, William experienced an immediate increase in level from 50% in the final session of contingency reversal up to 90% in the first session of the reimplementation of TO-EE. William's compliance was stable (range 85% to 95%) throughout the second presentation of TO-EE with a mean compliance level of 91%.

David exhibited somewhat variable data (range 30% to 60%) with a decreasing trend in baseline. David's mean compliance in baseline was 45%. During David's first exposure to TO-EE he exhibited an immediate increase in level from 45% final compliance in baseline up to 70% compliance in the first session of TO-EE. Throughout TO-EE David exhibited an increasing trend with his final session reaching 95% compliance. David experienced a change in level from 95% compliance in the final session of TO-EE to 70% and 35% compliance in the first and second session of contingency reversal, respectively. David's data reached stability in the third and fourth sessions of contingency reversal at 45% compliance. David's mean compliance in

contingency reversal was 49%. David experienced an immediate change in level (from 45% compliance in the final contingency reversal to 80% compliance in return TO-EE session) along with a steadily increasing trend when he transitioned from contingency reversal to TO-EE. David's mean compliance level in the second presentation of TO-EE was 85%.

Percent compliance to reissued commands was also examined for each participant in each phase. Across baseline, first presentation of TO-EE, and the second presentation of TO-EE Mike complied with an average of 0, 55, and 77% of reissued commands, respectively. Wade's mother did not use any reissued commands during baseline. Contingency reversal procedures did not include reissued commands; however Wade's mother stated one reissued command in two contingency reversal sessions. Wade complied with an average of 88, 50, and 89% of reissued commands across the first presentation of TO-EE, contingency reversal, and reimplementation of TO-EE, respectively. William complied with an average of 50, 100, and 100% of reissued commands across baseline, first presentation of TO-EE, and the reimplementation of TO-EE, respectively. Across baseline, the first presentation of TO-EE, and the reimplementation of TO-EE David complied with 33, 95, and 85%, respectively.

Participant compliance to all commands (i.e., initial and reissued) was also calculated. Across baseline, the first presentation of TO-EE, contingency reversal, and the reimplementation of TO-EE Mike complied with an average of 18, 72, 17, and 84% of all commands. Wade complied with an average of 55, 85, 68, and 92% of all commands across baseline, the first presentation of TO-EE, contingency reversal, and the reimplementation of TO-EE, respectively. William complied with an average of 63, 88,

72, and 92% of all commands across baseline, the first presentation of TO-EE, contingency reversal, and the reimplementation of TO-EE, respectively. David complied with an average of 44, 85, 49, and 85% of all commands across baseline, the first presentation of TO-EE, contingency reversal, and the reimplementation of TO-EE, respectively.

Treatment Acceptability

All parents completed the TARF-R (Reimers et al., 1992) to rate TO-EE on the degree to which they found the treatment to be acceptable (i.e., effective and fair; Finn & Sladeczek, 2001). TARF-R scores for Mike, Wade, William, and David were 101, 109, 115, and 113, respectively. All mothers rated TO-EE as highly acceptable.

CHAPTER IV

DISCUSSION

The use of functional assessments to inform treatment selection has been advocated for (e.g., Iwata et al., 1982; Iwata et al., 1990) and has demonstrated treatment utility (e.g., Dufrene et al., 2007; Wilder et al., 2007); however research has been mixed on the benefits of using functional analysis data to guide treatment selection in comparison to treatments selected based on their previously successful application to similar behaviors and/or behaviors with similar topographies (e.g., Gresham et al., 2004; Newcomer & Lewis, 2004; Schill et al., 1998; Wilder et al., 2007). Further research is needed to inform an efficient and effective selection of treatment.

Assessing the effectiveness of evidence-based treatments to common behavior problems in which the function of the problem behavior has been identified is limited (e.g., Kern et al., 2002; Swartzwelder, 2008). In the current study the effectiveness of TO-EE at reducing primarily escape-maintained and primarily attention-maintained noncompliance was evaluated. By examining the effectiveness of TO-EE to reduce the common maintaining functions of noncompliance (i.e., attention and escape, Reimers et al., 1993) results can inform the debate of the use of function-based treatment selection in comparison to treatment selection based on their previously successful application to similar behaviors and/or behaviors with similar topographies. The discussion below is organized with regard to the presented research questions.

Research Question 1

The first research question examined whether TO-EE is effective at increasing compliance to parents' first-time issued "do" instructions for children whose

noncompliance is escape-maintained. The results from Mike and Wade were reviewed to address this question. Visual analyses of data from Mike and Wade indicate that TO-EE is effective at reducing primarily escape-maintained noncompliance. Both participants experienced significant increases in compliance with the implementation TO-EE. TO-EE did not allow Mike or Wade to access escape contingent upon noncompliance which led to a decrease in noncompliance which is evidence of TO-EE serving as a punishment procedure. Average compliance for Mike and Wade ranged from 82%-93%. Based on the majority of children complying with 80% of commands (Rhode et al., 1993), these results indicate that TO-EE effectively increased Mike and Wade's compliance to acceptable levels. Results from Everett et al. (2007), Needelman (2008, 2010), Swartzwelder (2008), and Benshoof (2009) also support the use of TO to reduce escape-maintained noncompliance. It is notable that TO was found to be effective at decreasing escape-maintained noncompliance and was also found to be highly acceptable to the parents who implemented it.

Research Question 2

The second research question examined if TO-EE is effective at increasing compliance to parents' first-time issued "do" instructions for children whose noncompliance is attention-maintained. Results from William and David were reviewed to answer this question. Data analyses of William and David's results indicate that TO-EE is effective at reducing attention-maintained noncompliance. William and David were not able to access attention contingent upon noncompliance when TO-EE was implemented which led to a reduction in noncompliance. The reduction in William and David's noncompliance levels with the implementation of TO-EE demonstrates TO-EE

serving as a punishment procedure by preventing access to attention contingent upon noncompliance. Average compliance for William and David ranged from 83%-91%. These levels of compliance achieved by William and David with the implementation of TO-EE place them at an average level for compliance considering the average child complies with about 80% of commands (Rhode et al., 1993). Results from Swartzwelder (2008) also support the use of TO procedures with attention-maintained noncompliance. Parents of the children with attention-maintained compliance also rated TO-EE to be a highly acceptable intervention.

Limitations and Strengths

Through the completion of the FAIR-P parents indicated that their child's compliance was primarily maintained by either attention or escape; however it is important to note that all parents endorsed some items (less than the amount endorsed for alternate maintaining function) indicating that noncompliance was also supported by the alternate function. Also, while participant data pointed towards noncompliance being largely maintained by either escape (i.e., Mike and Wade) or attention (i.e., William and David) through the completion of the two step functional assessment, moderate levels of noncompliance were also exhibited in the alternate abbreviated condition. It is possible that the results from the abbreviated functional analysis were affected by the study implementing a 10 s escape time period following noncompliance in contrast to a commonly implemented 30 s (e.g., Dufrene et al., 2007; Iwata et al., 1982; Kern et al., 2002) which would have provide a larger magnitude of reinforcement for the selected behavior. Abbreviated functional analysis data also should be interpreted with awareness of the lack of extended functional analysis data results in comparatively less definitive

conclusions being drawn due to the brevity of the analysis. The parent responses from the FAIR-P combined with the visual analysis of the abbreviated functional analysis data do support that all participants' compliance was largely maintained by escape or attention; however it is also demonstrated that the participants' noncompliance was not maintained by solely one factor (i.e., attention or escape).

The results of this study in regard to function specific effectiveness of TO-EE to reduce noncompliance may have been influenced by each child's noncompliance serving multiple functions as noted above. While escape or attention compliance levels were lowest in the corresponding maintaining function for each child, noncompliance was also present in the alternate functional analysis condition. Dual maintaining functions of noncompliance for children in this study is supported by the data indicating that compliance was never 100% for any child in either functional analysis condition. Remiers et al (1993) also noted that while a child's noncompliance may be primarily maintained by either attention or by escape, it is likely that noncompliance is also maintained to a lesser degree by the alternate maintaining function. These conclusions point to the possibility that referring to only one maintaining function of a child's problem behavior is likely an oversimplification.

The prospect of noncompliance being maintained by attention and escape presents a limitation in this study because the conclusions that have been drawn are in relation to individuals with primarily escape-maintained or attention-maintained noncompliance. While this is a limitation, verification of the identified function of noncompliance through the functional assessment procedures was established through the contingency reversal phase in which all participants experienced significant losses in compliance.

Another limitation of this study is the analogue setting in which it was conducted. As Hanley et al. (2003) noted functional analyses conducted in analogue settings raise concerns with ecological validity. Research has also demonstrated that TO is most effective when an enriched time-in environment is present (Shriver & Allen 1996). In an effort to generate a more naturalistic environment parents were responsible for implementing all procedures with their child and selected all commands issued throughout the study. It is possible that each child was accessing an enriched time-in environment in comparison to a home setting throughout phases. The high number of commands in a relatively short period of time (i.e., 20 commands in 30-min) that were issued within the analogue setting was not likely present in the children's home setting. While the high frequency of commands is a concern in regard to ecological validity, a strength to parents issuing a high frequency of commands in the study was the children experiencing frequent, repeated exposure to the newly established contingencies for compliance and noncompliance which likely contributed to the quickly established changes in compliance levels.

This study is limited in the small number of participants and restricted gender of participants. While ages ranged from two- to seven-years-old, all participants were male and three out of the four participants were typically developing children. Mike had a previous diagnosis of Autistic Disorder which demonstrates preliminary evidence of TO-EE being effective at reducing escape-maintained noncompliance within the Autism Spectrum Disorder population. Further replications are needed with more diverse populations.

Preliminary support for the continued effectiveness of TO-EE to maintain adaptive levels of compliance can be gained through the continued effectiveness of TO-EE upon its reimplementation following the contingency reversal condition; however only short term effects of TO-EE on reducing escape-maintained and attention-maintained noncompliance can be assessed. Further research containing follow-up data is needed to examine long-term effects of TO-EE on compliance for attention-maintained and escape-maintained noncompliance.

The success of the parent training procedures to establish high levels of procedural integrity is a strength of the current study. And, although procedural integrity IOA data were not obtained, parents' consistently high procedural integrity and resulting levels of child compliance during phases of TO-EE attenuate this limitation and suggest an intervention that was well learned and consistently implemented by parents. It is also noteworthy that the parents who implemented TO-EE found it to be a highly acceptable intervention. The combination of a highly acceptable treatment combined with high levels of procedural integrity may suggest that parents would more likely use TO-EE outside of the clinic session, thereby potentially leading to generalization of treatment gains into a child's daily life. However, further research is needed to confirm these possibilities. The consistently high levels of IOA are also strengths of the current study.

Conclusions, Directions for Future Research, and Implications for Practitioners

The effectiveness of TO has been hypothesized to be influenced by the maintaining function of noncompliance throughout the literature (Shriver & Allen, 1996; Sterling-Turner & Watson, 1999). It has been postulated that TO is not effective at reducing escape-maintained behaviors and that its application should be limited to

attention-maintained behaviors. Several studies (i.e., Benshoof, 2009; Everett et al., 2007; Needelman, 2008, 2010; Swartzwelder, 2008) have demonstrated that TO can effectively reduce escape-maintained noncompliance. While the cited studies are limited to escape-maintained noncompliance, data from these studies challenge the theoretical argument that TO is not effective at reducing escape-maintained behaviors and that application of TO should be limited to attention-maintained behaviors. The theoretically-based argument that TO effectively reduces attention-maintained behaviors has limited direct support. Swartzwelder (2008) and the current study provide preliminary evidence to support the stance that TO does effectively reduce attention-maintained behaviors.

The question of whether the function of a problem behavior influences the effectiveness of TO is part of a broader debate involving the most efficient and effective method to select a treatment. Results across studies have varied in support of the use of function-based treatment selection in comparison to the use of treatment selection based on previous effectiveness with similar behaviors and/or behaviors with similar topographies (Newcomer & Lewis, 2004; Schill et al., 1998; Wilder et al., 2007). Data from the current study and Swartzwelder (2008) indicate that when an evidence-based treatment (i.e., TO) is applied to noncompliance maintained by attention or by escape children are able to reach adaptive levels of compliance.

In the current study it is likely that TO-EE was effective with both attention-maintained and escape-maintained noncompliance due to TO-EE's robust treatment qualities that prevent access to both attention and escape contingent upon noncompliance. TO-EE therefore has the ability to function as a punisher for both attention-maintained and escape-maintained noncompliance. Results from this study along with data from

Benshoof (2009), Everett et al. (2007), Needelman (2008, 2010), and Reimers et al. (1993) also suggest that noncompliance is unlikely to be maintained exclusively by escape or attention. Based on the hypothesis supported by these studies that problem behaviors may be primarily maintained by one function (e.g., escape) and also maintained to a lesser degree by another function (e.g., attention), one could reason that implementing evidence-based treatments that address multiple functions of behavior could be effective at reducing problem behaviors without the need for functional assessment data.

Results from the current study provide support for the selection of treatments that have previously demonstrated effectiveness with similar behaviors and/or behaviors with similar topographies. Given that one treatment (i.e., TO-EE) can function as a punisher to multiple functions (i.e., escape, attention) of a problem behavior (i.e., noncompliance), there is not a need to determine which function is maintaining the problem behavior to implement an effective treatment. While this study is restricted to conclusions of TO-EE functioning a punisher for noncompliance maintained by attention and/or escape, the results of this study indicate that implementing a robust treatment that addresses identified functions of a problem behavior is likely to lead to reduction of the problem behavior without spending time and resources completing a functional assessment.

Results from the current study suggest that it is likely that practitioners can establish acceptable rates of compliance by implementing TO-EE without determining the function of noncompliance. A practitioner being able to move directly to the treatment of a child's noncompliance rather than spending time assessing the maintaining functions of noncompliance has the potential to reduce the amount of time between

identification of treatment goals and implementation of an effective intervention. In a clinical setting it is likely that families would save both time and money from such efficiency. Saving families time and money may also decrease the attrition rate of families once they initiate therapeutic services. Although data from the current study may suggest that a functional assessment is not necessary to implement an effective intervention for increasing compliance levels, it is clear that further research is needed to reach a definitive conclusion as to the best method of treatment selection.

APPENDIX A

INSTITUTIONAL APPROVAL FORMS

**INSTITUTIONAL REVIEW BOARD**

118 College Drive #5147 | Hattiesburg, MS 39406-0001
 Phone: 601.266.6820 | Fax: 601.266.4377 | www.usm.edu/irb

NOTICE OF COMMITTEE ACTION

The project has been reviewed by The University of Southern Mississippi Institutional Review Board in accordance with Federal Drug Administration regulations (21 CFR 26, 111), Department of Health and Human Services (45 CFR Part 46), and university guidelines to ensure adherence to the following criteria:

- The risks to subjects are minimized.
- The risks to subjects are reasonable in relation to the anticipated benefits.
- The selection of subjects is equitable.
- Informed consent is adequate and appropriately documented.
- Where appropriate, the research plan makes adequate provisions for monitoring the data collected to ensure the safety of the subjects.
- Where appropriate, there are adequate provisions to protect the privacy of subjects and to maintain the confidentiality of all data.
- Appropriate additional safeguards have been included to protect vulnerable subjects.
- Any unanticipated, serious, or continuing problems encountered regarding risks to subjects must be reported immediately, but not later than 10 days following the event. This should be reported to the IRB Office via the "Adverse Effect Report Form".
- If approved, the maximum period of approval is limited to twelve months. Projects that exceed this period must submit an application for renewal or continuation.

PROTOCOL NUMBER: **C29102203**

PROJECT TITLE: **The Use of Time-Out with Escape-Extinction to Reduce Noncompliance Maintained by Escape or Attention**

PROJECT TYPE: **Dissertation or Thesis**

RESEARCHER/S: **Shelly Renee Benshoof**

COLLEGE/DIVISION: **College of Education & Psychology**

DEPARTMENT: **School Psychology**

FUNDING AGENCY: **N/A**

IRB COMMITTEE ACTION: **Expedited Review Approval**

PERIOD OF PROJECT APPROVAL: **11/01/10 to 10/31/11**

Lawrence A. Hosman, Ph.D.
Institutional Review Board Chair



INSTITUTIONAL REVIEW BOARD

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- Any unanticipated, serious, or continuing problems encountered regarding risks to subjects must be reported immediately, but not later than 10 days following the event. This should be reported to the IRB Office via the "Adverse Effect Report Form".
- If approved, the maximum period of approval is limited to twelve months.
 Projects that exceed this period must submit an application for renewal or continuation.

PROTOCOL NUMBER: **R29102203**

PROJECT TITLE: **The Use of Time-Out with Escape-Extinction to Reduce Noncompliance Maintained by Escape or Attention**

PROJECT TYPE: **Renewal of a Previously Approved Project**

RESEARCHER/S: **Shelly R. Benshoof**

COLLEGE/DIVISION: **College of Education & Psychology**

DEPARTMENT: **School Psychology**

FUNDING AGENCY: **N/A**

IRB COMMITTEE ACTION: **Expedited Review Approval**

PERIOD OF PROJECT APPROVAL: **02/16/2012 to 02/15/2013**

Lawrence A. Hosman, Ph.D.
Institutional Review Board Chair



Institutional Review Board
Office of Regulatory Affairs

August 3, 2011

Shelly R. Benshoof
Psychology
UNMC – 5450

IRB#: 440-10 EP

TITLE OF PROTOCOL: The Use of Time-Out with Escape Extinction to Reduce Noncompliance Maintained by Escape or Attention

DATE OF EXPEDITED REVIEW 07-25-2011

IRB APPROVAL VALID UNTIL 07-25-2012

The Institutional Review Board (IRB) for the Protection of Human Subjects has completed its review of the Application for Continuing Review for the above titled research project including the complete protocol file and has expressed it as their opinion that you have provided adequate safeguards for the rights and welfare of the subjects involved in this study and are in compliance with HHS Regulations for the Protection of Human Subjects (45 CFR 46) and FDA Regulations (21 CFR 50.56) as applicable. This letter constitutes official notification of the re-approval of your research project by the IRB for the IRB approval period indicated above. You are therefore authorized to continue this study. **All copies of the outdated consent/assent form(s) must be discarded immediately.** The original IRB stamped form(s) may be archived.

We wish to remind you that, under the provisions of the Federal Wide Assurance (FWA 00002939) from the Institution to HHS, the principal investigator is directly responsible for keeping the IRB informed of any proposed changes involved in the procedures or methodology in the protocol and for promptly reporting to the Board any unanticipated adverse events or other problems related to the research which involve risks to the subjects or others.

In accordance with HRPP policy, this project is subject to periodic review and monitoring by the IRB and, as part of their monitoring, the IRB may request reports of progress and results. For projects which continue, it is also the responsibility of the principal investigator to initiate a request to the IRB for Continuing Review of the research project in consideration of the IRB approval period.

Sincerely,

A handwritten signature in black ink, appearing to read "Bruce Gordon".

Bruce G. Gordon, MD
Chairman, Joint Pediatric IRB

BGG: sah

APPENDIX B

PARENTAL CONSENT FORM

University of Southern Mississippi
Consent Document for Research Participants

TITLE OF STUDY: THE USE OF TIME-OUT WITH ESCAPE EXTINCTION TO REDUCE NONCOMPLIANCE MAINTAINED BY ESCAPE OR ATTENTION

PURPOSE OF STUDY. Your permission is requested for your child to participate in a study that is investigating how implementing time-out procedures including escape extinction (i.e., instructional re-presentation) affect escape-maintained noncompliance and attention-maintained noncompliance. Escape-maintained child noncompliance occurs when a child does not follow instructions to avoid or to terminate an undesirable task. Attention-maintained child noncompliance occurs when a child does not follow instructions to gain access to social attention. Time-out has been shown to be effective at reducing noncompliance, but research is lacking in evaluating the effectiveness of TO when applied to varying functions of noncompliance. Initial research has been completed that has indicated that implementing TO with an escape extinction component (TO-EE) is effective at reducing escape-maintained childhood noncompliance. Research has not evaluated the effects of TO with or without an escape extinction component on attention-maintained noncompliance. Escape extinction consists of reissuing the command that resulted in the child being placed in TO when the child is released from TO. This study will evaluate the effects of TO-EE on childhood escape-maintained noncompliance and attention-maintained noncompliance. This study is important because it will add to the research investigating TO-EE's effectiveness at reducing escape-maintained childhood noncompliance. Additionally, this study will expand on the current research by examining TO-EE's effectiveness at reducing attention-maintained noncompliance.

WHO CAN PARTICIPATE? Your child must be between the ages of 2- to 10-years old. Additionally, your child must comply with less than 60% of the instructions that you issue in the screening session and his/her noncompliance must be identified as escape-maintained or attention-maintained through a functional assessment process. The functional assessment process will include both a descriptive interview and confirmatory brief functional analysis conditions. If your child has been trained using time-out methods implemented at USM in the past, he/she is not eligible for participation. If your child does not meet the participation criteria for this study, he/she will be referred to the USM School Psychology Service Center, another provider, or to the school's Teacher Support Team for services.

METHODS AND PROCEDURES. If you agree to let your child be in this study, and if your child is selected for the study, you will be asked to give commands to him/her in the same manner that you would on a regular basis. All sessions will be videotaped. If your child complies with less than 60% of the commands that you give, your child will continue on to the second step. This step includes a functional assessment interview and

brief functional analysis conditions through which the function maintaining your child's noncompliance will be analyzed. Again you will be asked to deliver instructions to your child, and either ignore them or continue interacting with them depending on their behavior. If your child's noncompliance is determined to be escape-maintained or attention-maintained, you will then be taught to administer TO-EE in response to noncompliance with instructions that you deliver. Following TO-EE implementation, you will then be taught to provide attention or escape to your child contingent upon noncompliance. The experimenter and a trained graduate student will observe live sessions and review video recordings of the sessions. The experimenter and a trained graduate student will write down what you and your child do throughout these observations. These observations will be used to see if there is a difference in your child's compliance based on the implementation of TO-EE. The observations will continue until it is clear as to whether or not TO-EE increases your child's level of compliance. It is unknown how many sessions it will take to clearly see if TO-EE is effective at reducing escape-maintained noncompliance and attention-maintained noncompliance.

RISKS AND DISCOMFORT. The potential risks from this study include a potential temporary increase in your child's noncompliance because it may be that by allowing escape from instructions or attention for noncompliance for escape-maintained noncompliance and attention-maintained noncompliance, respectively, noncompliance increases (i.e., within functional analysis, TO-EE, and contingency reversal conditions). Also, because TO procedures will be used your child may temporarily become frustrated, angry, and/or exhibit some potentially aggressive behaviors during time-out. Your child may also become frustrated with the demands that are placed on them during the sessions. Because of these potential risks, a positive consequence (i.e., praise) is included for compliant responding and following completion of the study you will receive compliance training consisting of positive procedures (i.e., effective instruction delivery and time-in) free of charge.

BENEFITS. Participation in the procedures within this study may be of benefit to you and your child due to the results indicating a procedure that you can use with your child to increase his/her compliance.

CONFIDENTIALITY OF RECORDS. Assessment data, intervention programs, or related information gathered during the process of this study will be held in strict confidence from all persons not connected with this study. Information gained in this study will not be released to any outside person or agency unless you, as parent or legal guardian have given written consent prior permission to do so. Your child's name and other identifying information will be excluded from any research paper and from presentations, such as workshops, poster sessions, other professional meetings, or publications. Videotaped sessions cannot be used in professional presentations without your prior written consent.

Participant records will be maintained for 3 years after the last contact with the participant. After 3 years, the summary report will be maintained for an additional 2 years. Outdated material will be disposed of by paper shredding.

*While confidentiality will be maintained at all times, there are circumstances which may warrant breaking confidentiality. Those include (1) if your child is in danger of causing self-injury, (2) in cases where there is information suggesting past or *present* child abuse, (3) if others are in danger through the actions of your child, (4) if ordered by the Courts to turn over case information, or (5) in cases of medical emergencies. State law requires that suspected child abuse or neglect be reported. Beyond all, our greatest concern is the welfare of your child.*

Although assurance cannot be made regarding the results that may be obtained in this study (results cannot be predicted due to the study's investigational nature), the researcher will take every precaution consistent with the best scientific practices. Participation in this study is completely voluntary and participants may withdraw at any time without penalty, prejudice, or loss of benefits. Questions concerning the research should be directed to Shelly Benshoof or Dr. Daniel Tingstrom at (601)266-5255. This project and this consent form have been reviewed by the Human Subjects Protection Review Committee which ensures that research projects involving human subjects follow federal regulations. Any questions or concerns about rights as a research subject should be directed to the Institutional Review Board Office, The University of Southern Mississippi, Box 5147, Hattiesburg, MS 39406-5147, (601) 266-6820. A copy of this form will be given to the participant.

PARTICIPANT'S CONSENT. I have had the purposes and procedures of this study explained to me and have had the opportunity to ask questions. My questions have been answered to my satisfaction, and I am voluntarily signing this form for my child to participate in this research study. My signature shows my willingness to allow my child to participate in this study under the conditions stated.

This Section to be Completed By Parents

CHECK ONE, AND SIGN BELOW:

_____ I hereby **give my** permission to the USM School Psychology Service Center to utilize video and/or audiotaped materials from sessions in the Center for conference / workshop presentations and non-clinic related educational presentations. I further understand that I may revoke this consent at any time except to the extent that the action has been taken thereon.

_____ I **DO NOT give my permission** to the USM School Psychology Service Center to utilize video and/or audiotaped materials from sessions in the Center for conference / workshop presentations and non-clinic related educational presentations.

Name of Child

Child's Birth Date

Age of Child

*Parent or Legal Guardian's name
(please print)*

Relationship to Child

Parent or Legal Guardian's signature

Date

APPENDIX C

ABBREVIATED FUNCTIONAL ANALYSIS OBSERVATION DATA

COLLECTION/ PROCEDURAL CHECKLIST

Date: _____ Participant: _____

Condition: _____ Observer: _____

Command	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Adult Bx																				
Command																				
Attention																				
Escape																				
Child Bx																				
Compliance																				
Noncompliance																				

Calculations

(Total # of Compliance ___ / Total # of Commands ___) X 100 = ___% **Compliance**(Total # of Noncompliance ___ / Total # of Commands ___) X 100 = ___% **Noncompliance**

Adapted from Benshoof (2009).

APPENDIX D

BASELINE, TO-EE, AND CONTINGENCY REVERSAL OBSERVATION DATA COLLECTION/

TO-EE AND CONTINGENCY REVERSAL PROCEDURAL INTEGRITY CHECKLIST

Date:_____ Participant:_____ Observation #:_____ Phase:_____ Observer:_____

Command	Initial or Reissued	“Do” Instruction	5 s Latency	Compliance/ Noncompliance	Praise	Verbal Reason	TO Administered	Ignoring	TO Escape	*Repeated Returns	TO Release	**Escape Extinction
1												
2												
3												
4												
5												
6												
7												
8												
9												
10												
11												
12												
13												
14												
15												
16												
17												
18												
19												
20												

Calculations

Total # of Initial Commands (IC) = ____ Total # of Reissued Commands (RC) = ____

Total # IC ____ + Total # RC ____ = ____ Total of Commands

(Total # of “Do” Instructions ____ / Total # of Commands ____) X 100 = **% of Commands that were “Do” Instructions**

(Total # of “Other” Instructions ____) / Total # of Commands ____) X 100 = **% of Commands that were “Other” Instructions**

Total # Compliance (C) = ____ Total # Noncompliance (NC) = ____

(Total # C ____ / Total # of Commands ____) X 100 = **% C**

(Total #NC ____ / Total # of Commands ____) X 100 = **% NC**

Total # C to IC = ____ Total # C to RC = ____

(Total # C to IC ____ / Total # of IC ____) X 100 = ____ **% C to IC**

(Total # C to RC ____ / Total # of RC ____) X 100 = ____ **% C to RC**

(Total # Praise Delivered Following C ____ / Total # C____) X 100= **% C Followed by Praise**

Total # TO Administered (TOA): ____

(Total # TOA Following NC____ / Total # NC ____) X 100 = **% TO Followed NC**

(Total # five s Latencies Preceding TOA ____ / Total # NC ____) X 100 = **% Parent Compliance with five s Latency**

(Total # Verbal Reasons in TOA ____ / Total # TOA) X 100 = **% TOA Incorporating Verbal Reason**

(Total # of Ignoring in TOA ____ / Total # TOA) X 100 = % **TOA Incorporating Ignoring**

Total # of Commands the Child Escapes TO (CETO) = ____

(Total # of Repeated Returns ____ / Total # of Commands the CETO ____) X 100 = % **Repeated Returns Implemented When**

Child Escaped TO

(Total # TO Release ____ / Total # TOA) X 100 = % **TOA incorporating TO Release Implementation**

(Total # Escape Extinction ____ / Total # NC ____) X 100 = % **Escape Extinction Implementation Following NC**

Adapted from Benshoof (2009).

APPENDIX E

FUNCTIONAL ASSESSMENT INFORMANT RECORD-PARENT FORM

If the information is being provided by more than one source, indicate the names of all people providing information. In addition, any time there is a disagreement; please note the specific source of the information.

Child: _____ Birth Date: _____ Age: _____ Sex: _____

Address: _____ Home Phone: _____

City, State: _____ Zip Code: _____ Work Phone: _____

Respondent(s): _____ Relation to child: _____

1. Describe the referred child. What is the most important piece of information you can provide about this child? What is he or she like at home? Describe your relationship with your child.

2. Do you believe any of the following could contribute to the behavior problem?

	Yes	No	Sometimes
• <i>Current medications?</i>	_____	_____	_____
• <i>Current medical conditions?</i>	_____	_____	_____
• <i>Current physical conditions?</i>	_____	_____	_____
• <i>Sleep problems?</i>	_____	_____	_____

If Yes to any, explain:

3. Would you say there is a general agreement between the adults of the house on how discipline is handled? _____Yes _____No If No, please explain:

4. What have you done in the past to deal with these behaviors?

5. How often (e.g., ten times a day, once a week, etc.) do you need to use discipline *for these particular behaviors*? _____

6. When your child is acting okay, what do you do?

7. If you were to give your child 10 commands, how many times would he or she comply the *very first time*?

_____/10 (Respondent #1) ____/10 (Respondent #2)

8. Out of these same 10 commands, how often would he or she eventually comply?

_____/10 (Respondent #1) ____/10 (Respondent #2)

9. Describe your child's general *appetite and mealtime behaviors*. Do you think this may influence his or her overall behavior? If so explain.

10. Briefly list your child's typical daily schedule of activities. *Check the box* if the problem behavior frequently occurs at that time or during that activity.**

- ☐ 7:00 am _____
- ☐ 8:00 am _____
- ☐ 9:00 am _____
- ☐ 10:00 am _____
- ☐ 11:00 am _____
- ☐ 12:00 pm _____
- ☐ 1:00 pm _____
- ☐ 2:00 pm _____
- ☐ 3:00 pm _____
- ☐ 4:00 pm _____
- ☐ 5:00 pm _____
- ☐ 6:00 pm _____
- ☐ 7:00 pm _____
- ☐ 8:00 pm _____
- ☐ 9:00 pm _____
- ☐ 10:00 pm – morning _____

****PLEASE DISTINGUISH
BETWEEN WEEKDAY
AND WEEKEND.**

Problem Behaviors

Please list one to three problem behaviors in order of severity. Do not use a general description such as “disruptive” but give the actual behavior, such as “will not follow directions the first time given,” or “exhibits temper tantrums consisting of screaming, kicking, etc.”. Also describe what the behaviors “look like” (how long does it last, how intense is it, etc.)

1. _____

2. _____

3. _____

1. Rate how manageable the behavior is:

Unmanageable Manageable

a. Problem Behavior 1	1	2	3	4	5
b. Problem Behavior 2	1	2	3	4	5
c. Problem Behavior 3	1	2	3	4	5

2. Rate how disruptive the behavior is:

Unmanageable Manageable

a. Problem Behavior 1	1	2	3	4	5
b. Problem Behavior 2	1	2	3	4	5
c. Problem Behavior 3	1	2	3	4	5

3. How often does the behavior occur per day (please circle)?

a. Problem Behavior 1	<1-3	4-6	7-9	10-12	>13
b. Problem Behavior 2	<1-3	4-6	7-9	10-12	>13
c. Problem Behavior 3	<1-3	4-6	7-9	10-12	>13

4. How many months has the behavior been present?

a. Problem Behavior 1	<1	2	3	4	<one year
b. Problem Behavior 2	<1	2	3	4	<one year
c. Problem Behavior 3	<1	2	3	4	<one year

Antecedents: (attach additional sheets for each problem)

Problem Behavior # _____: _____

1. Does the behavior occur more often than during

- | | | | |
|---|-----|----|-----------|
| • a certain <u>type</u> of task/request | Yes | No | Sometimes |
| • <u>easy</u> tasks/requests? | Yes | No | Sometimes |
| • <u>difficult</u> tasks/requests? | Yes | No | Sometimes |
| • <u>certain activities</u> ? | Yes | No | Sometimes |
| • <u>new activities</u> ? | Yes | No | Sometimes |

If yes to any, please explain _____

2. Does the behavior occur more often when

- | | | | |
|--|-----|----|-----------|
| • a request is made during an <u>activity</u> ? | Yes | No | Sometimes |
| • the child is asked to <u>start</u> a <u>certain task</u> ? | Yes | No | Sometimes |
| • a request is made to <u>stop</u> an activity? | Yes | No | Sometimes |
| • a <u>request has been denied</u> ? | Yes | No | Sometimes |
| • a <u>disruption</u> occurs in normal routines? | Yes | No | Sometimes |

If yes to any, please explain _____

3. Does the behavior occur more often when

- | | | | |
|---|-----|----|-----------|
| • a <u>specific person/parent is in the room/setting</u> ? | Yes | No | Sometimes |
| • a <u>specific person/parent is absent from the room/setting</u> ? | Yes | No | Sometimes |
| • a <u>specific person/parent tries to interact with the child</u> ? | Yes | No | Sometimes |
| • a <u>specific person/parent delivers specific requests of the child</u> ? | Yes | No | Sometimes |

If yes to any, please explain _____

4. Are there any other behaviors that usually happen before the problem behavior?

Yes No Sometimes If yes, briefly describe the behaviors. _____

5. Is there anything you could do to ensure the occurrence of the behavior? If yes, briefly describe what that would be. _____

Consequences: (attach additional sheets for each problem behavior)

Problem Behavior # ____:_____

1. Please check any of the following statements that apply to you and your child:

- ____ “Any time my child acts out I make sure to always deal with it.”
- ____ “Sometimes when my child acts up, I ignore the behavior.”
- ____ “As soon as my child has my attention, the behavior stops.”
- ____ “The behavior will not stop until I leave my child alone.”
- ____ “I often give up on making my child mind because the behavior gets so bad.”
- ____ “Sometimes my child seems to be in pain.”

2. When the problem behavior occurs, does your child lose privileges such as:

- | | | | |
|---|-----|----|-----------|
| • Phone | Yes | No | Sometimes |
| • Friends over | Yes | No | Sometimes |
| • Computer, video games, etc. | Yes | No | Sometimes |
| • Television | Yes | No | Sometimes |
| • Grounding | Yes | No | Sometimes |
| • Extra-curricular activity (sport, etc.) | Yes | No | Sometimes |
| • Other _____ | | | |

3. When the problem behavior occurs, does your child obtain attention:

- | | | | |
|---------------------|---------------|----|-----------|
| • From sibling | Yes | No | Sometimes |
| • From parent | Yes | No | Sometimes |
| In the form of... | | | |
| • Praise | Yes | No | Sometimes |
| • Time out | Yes | No | Sometimes |
| • Reprimands | Yes | No | Sometimes |
| • Spanking | Yes | No | Sometimes |
| • Interruption | Yes | No | Sometimes |
| • Yelling/Screaming | Yes | No | Sometimes |
| • Other | Explain _____ | | |

If yes to any, please explain _____

4. When the problem behavior happens, or gets worse, does your child get:

- | | | | |
|-------------------|-----|----|-----------|
| • Access to Game | Yes | No | Sometimes |
| • Access to Toy | Yes | No | Sometimes |
| • Access to food | Yes | No | Sometimes |
| • Access to money | Yes | No | Sometimes |
| • Access to task | Yes | No | Sometimes |

Please explain: _____

5. When the problem behavior occurs, does your child get out of...

- | | | | |
|---------------------|-----|----|-----------|
| • Parent Demands | Yes | No | Sometimes |
| • Parent Reprimands | Yes | No | Sometimes |
| • Specific Activity | Yes | No | Sometimes |

Please explain: _____

6. Does a particular person stop interacting with the child when the behavior occurs?

Yes No Sometimes

If yes or sometimes, please explain: _____

6a. When this person stops interacting with the child, does the behavior stop?

Yes No Sometimes

7. Are there other problem behaviors that often occur after the behavior?

Yes No Sometimes

If yes or sometimes, please explain: _____

8. Have you successfully used praise or any positive consequence that leads to behaviors you think are appropriate?

Yes No Sometimes

Please explain: _____

APPENDIX F

PARENTAL HANDOUTS

Guidelines for the Functional Analysis Conditions

Contingent Attention Condition

- ❑ Deliver an instruction every 30 s upon prompting from the experimenter.
- ❑ Allow a five s latency period for a response to occur.
- ❑ Provide no response to compliance with your request.
- ❑ If compliance does not occur within 5 s, direct verbal comments referring to the child's noncompliance exhibited from the previous command to the child.
- ❑ Wait for next instructional prompt, and repeat the same procedure.

Contingent Escape Condition

- ❑ Deliver an instruction every 30 s upon prompting from the experimenter.
- ❑ Allow a five s latency period for a response to occur.
- ❑ Provide no response to compliance with your request.
- ❑ If compliance does not occur within 5 s, turn away and ignore your child's noncompliance for a period of 10 s.
- ❑ Wait for next instructional prompt, and repeat the same procedure.

Adapted from Everett (2005).

Guidelines for Time-Out with Escape Extinction

- ❑ Present “do” instruction to your child and allow a five s latency period for response to occur.
- ❑ If compliance, provide praise to your child (e.g., “Good job.”).
- ❑ If noncompliance, provide a verbal reason as to why TO will be initiated (e.g., “You did hand me the car, TO.”).
- ❑ Begin the prompting procedure by verbally directing your child to TO in a spot 2-3 feet from the ongoing activity.
- ❑ If noncompliance with verbal direction, physically place the child in a TO spot 2-3 feet from the ongoing activity with as little physical assistance as required.
- ❑ Completely ignore your child while they are in TO, except to repeatedly return your child to the TO spot if they attempt to escape prior to release.
- ❑ Once your child has shown appropriate TO behavior (i.e., quiet hands, feet, mouth) a 3- to five s behaviorally contingent release period begins.
- ❑ Following 3 to 5 s of contingent quiet TO behavior, verbally release your child from TO (e.g., You are quiet, out of TO.”).
- ❑ After leaving TO reissue the same instruction that led to placement in TO, and provide either praise or another instance of TO depending on their response.

Adapted from Everett (2005).

APPENDIX G

TREATMENT ACCEPTABILITY RATING FORM-REVISED

Please complete the items listed below. The items should be completed by placing a checkmark on the line under the question that best indicates how you feel about the experimenter's treatment recommendations.

1. How clear is your understanding of this treatment?

____ Not at all _____ Neutral _____ Very clear

2. How acceptable do you find the treatment to be regarding your concerns about your child?

____ Not at all _____ Neutral _____ Very acceptable
acceptable

3. How willing are you to carry out this treatment?

____ Not at all _____ Neutral _____ Very willing
willing

4. Given your child's behavioral problems, how reasonable do you find the treatment to be?

____ Not at all _____ Neutral _____ Very reasonable
reasonable

5. How costly will it be to carry out this treatment?

____ Not at all _____ Neutral _____ Very costly
Costly

6. To what extent do you think there might be disadvantages in following this treatment?

____ None are _____ Neutral _____ Very likely
Likely

7. How likely is this treatment to make permanent improvements in your child's behavior?

_____ _____ _____
Unlikely Neutral Very Likely

8. How much time will be needed each day for you to carry out this treatment?

_____ _____ _____
Little time Neutral Much time will
will be needed be needed

9. How confident are you that the treatment will be effective?

_____ _____ _____
Not at all Neutral Very confident
confident

10. Compared to other children with behavioral difficulties, how serious are your child's problems?

_____ _____ _____
Not at all Neutral Very serious
serious

11. How disruptive will it be to the family (in general) to carry out this treatment?

_____ _____ _____
Not at all Neutral Very disruptive
disruptive

12. How effective is this treatment likely to be for your child?

_____ _____ _____
Not at all Neutral Very effective
effective

13. How affordable is this treatment for your family?

_____ _____ _____
Not at all Neutral Very affordable
Affordable

14. How much do you like the procedures used in the proposed treatment?

_____ _____ _____
Do not like Neutral Like them very
them at all much

15. How willing will other family members be to help carry out this treatment?

_____ _____ _____
Not at all Neutral Very willing
willing

16. To what extent are undesirable side-effects likely to result from this treatment?

_____ _____ _____
No side- Neutral Many side effects
effects at all are likely

17. How much discomfort is your child likely to experience during the course of this treatment?

_____ _____ _____
No discomfort Neutral Very much
at all discomfort

18. How severe are your child's behavioral difficulties?

_____ _____ _____
Not at all Neutral Very severe
severe

19. How willing would you be to change your family routine to carry out this treatment?

_____ _____ _____
Not at all Neutral Very willing

20. How well will carrying out this treatment fit into the family routine?

_____ _____ _____
Not at all well Neutral Very well

Adapted from Reimers et al. (1992).

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